



ADMINISTRATION BUILDING
PHILIPPINE GENERAL HOSPITAL

The
**MODERN
HOSPITAL**

Vol. VIII

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No. 3

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No. 3

Fig. 1. Philippine General Hospital. Block plan of hospital, college, and bureau of science.



Fig. 2. Philippine General Hospital, with auxiliary buildings, Manila.

ommendations looking toward the establishment of a general hospital in Manila. Dr. McDill's report was a very exhaustive summing up of the situation. It contained plans drawn up, in consultation with insular architect Bourne, for a general hospital of 1,500 beds, modeled somewhat after the great Hamburg-Eppendorf Hospital. In his report, Dr. McDill gave an analysis of the

plans, which in turn were based on the plans of the Hamburg-Eppendorf. Because of lack of funds, several of the essential and most important units in a modern hospital, such as laundry, linen rooms, store rooms, pantry, signal systems, incinerator, quarters for staff, nurses, and employees, provision for isolation of unclassified and noisy patients, receiving wards, and many others had

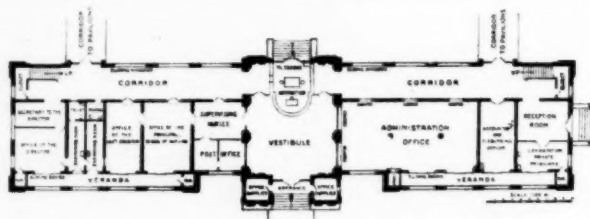


Fig. 3. Administration pavilion. First floor plan.

needs of an institution of this kind, submitted a tentative organization, and gave strikingly accurate estimates of what it would cost to build and operate such a hospital. During the years which elapsed between the McDill-Bourne report and the final acceptance of a bid for construction, expensive temporary expedients were in force by

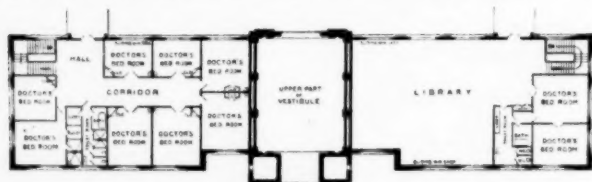


Fig. 4. Administration pavilion. Second floor plan.

the Government to furnish hospital care for its employees and the clamoring public.

Finally, after over a decade of American administration, plans were completed, and the present Government hospital constructed at a cost of about 750,000 pesos. The final plans were a modification of the original McDill-Bourne

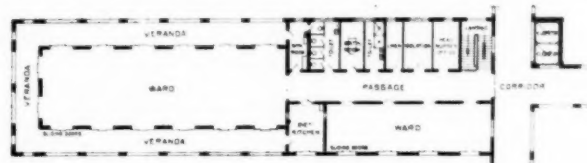


Fig. 5. Typical pavilion. Ground floor plan.

to be omitted. Some of these needs have been supplied by subsequent appropriations and many have not yet been completed.

The hospital had been open but a few weeks when it began to suffer severe criticism of many kinds from many sources. In June, 1914, shortly after Hon. W. T. Denison was made secretary of the interior, he held a public investigation of the

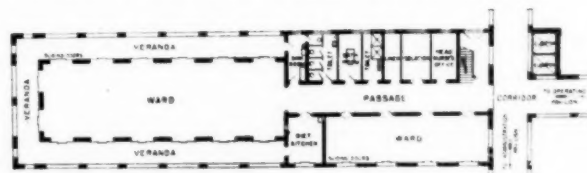


Fig. 6. Typical pavilion. Second floor plan.

whole hospital question and authorized a radical and extensive reorganization of the institution, involving much-needed physical changes in the buildings, a modern organization in personnel, new methods of accounting and disbursing of funds, and, in fact, revolutionary changes. I was selected to bring these changes about, and was appointed director of the hospital and given con-



General view, showing administration building to the right of center.

trol of its appropriation in July, 1914, and it is with the remodeled, reorganized hospital that this article deals.

FUNCTIONS

The Philippine General Hospital has assigned to it an unusual number of important functions even for a *general* hospital. Briefly stated, these functions are: (1) medical and surgical care for Government employees, their wives, and minor children who are not suffering from diseases due

to immoral or vicious habits of the patient, who, according to law, are entitled to treatment at the hospital either as "in-patients" or as "office patients;" (2) medical and surgical care for the poor of the city of Manila and the provinces; (3) hospital accommodations for private patients who are willing to pay for private rooms and other special accommodations; (4) emergency hospital and ambulance service for the city of Manila and

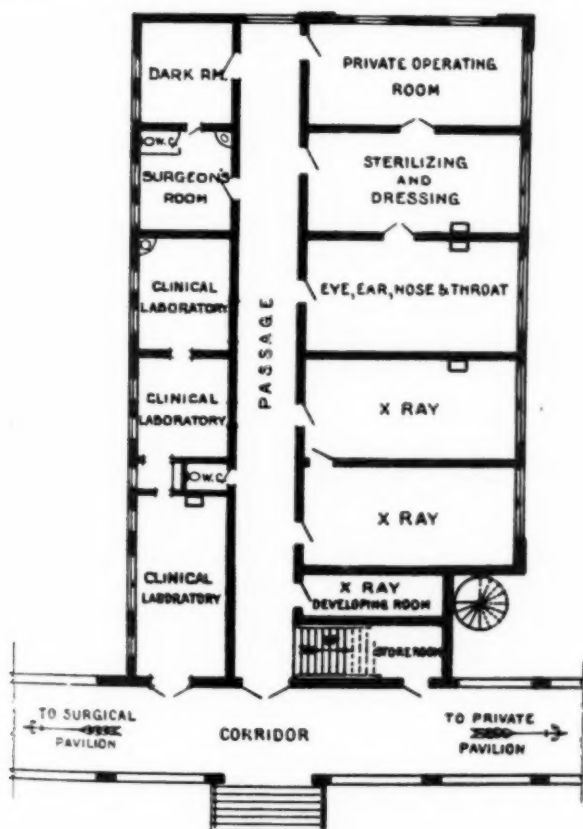


Fig. 7. Physical therapy, clinical laboratory, and operating pavilion. Ground floor plan.

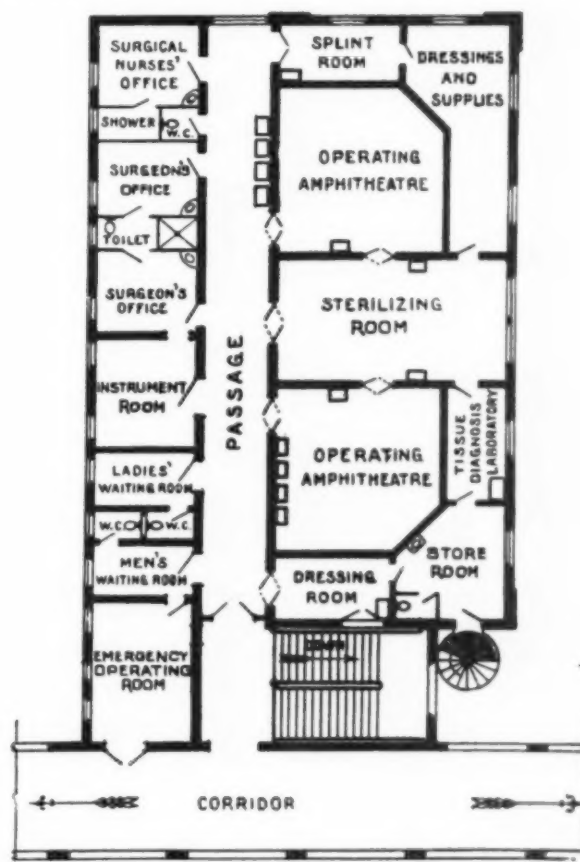


Fig. 8. Physical therapy, clinical laboratory, and operating pavilion. Second floor plan.

surrounding territory; (5) pharmacy service for hospital and free dispensary patients, for Government employees, and for the poor of the city of Manila; (6) out-patient visiting maternity service for the poor of the city of Manila, which is made possible by the generosity of the municipal board of the city of Manila; (7) skilled services in clinical laboratory work, x-ray and other laboratories for hospital and dispensary patients, Government employees, and the public in general; (8) educational facilities and teachers for interns, externs, graduate and undergraduate students of medicine, pharmacy, dentistry, nursing, and midwifery; (9) public welfare (social service) department for the poor of the city and

handles all the work of the college and hospital which may properly be classed as one of its functions.

As director of the hospital, the head of this organization is responsible to the secretary of the interior for the hospital, and as dean of the College of Medicine and Surgery to the president and Board of Regents of the University of the Philippines. Subject only to law and the jurisdiction of the secretary of the interior, he has administrative and executive control of all phases of hospital work, including its funds. There are an assistant director, an executive officer, and a secretary to the director, whose duties are indicated in the titles.

Chiefs of departments are responsible solely to

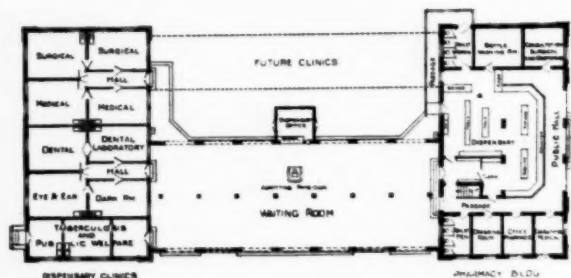


Fig. 9. Free dispensary and pharmacy buildings. Ground floor plan.

surrounding territory; (10) cooperation in facilities and personnel with all official and public societies and organizations looking to the improvement of health and social economic conditions.

PROFESSIONAL WORK

During the past year there were 7,116 patients treated in the hospital, with 685 births and 476 deaths. The total hospital days were 86,742. The free dispensary service handled 90,947 patients, of which 36,924 were first visits. The receiving and emergency service (including attending physicians' offices) cared for 17,131 patients. The out-patient visiting services in obstetrics had 7,355 patient visits, with 575 births and 48 deaths. Total births in hospital and out-patient service, 1,260. The total patients for all services were 116,230, with 337,918 patient visits. Of the hospital patients, 450 were Americans, 6,438 Filipinos, and 256 other nationalities.

ORGANIZATION

The organization includes the hospital, school of medicine, graduate school of tropical medicine and public health, school of pharmacy, school of dentistry, and school of nursing and midwifery. There are twenty-five departments, each department being further subdivided into such units as are required by the nature and volume of the work. So far as possible, each department

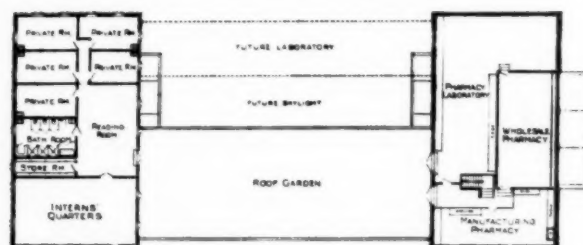


Fig. 10. Free dispensary and pharmacy buildings. Second floor plan.

the director. Each one is accountable for the successful administration of his department, and the proper and efficient discharge of all functions pertaining to it. Each department is required to hold constantly in view the discharge of three principal functions, namely: (1) teaching, (2) routine work, (3) research or investigation.

Each chief of department controls all the hospital, free dispensary, out-patient, and teaching work of his department. Expert assistance or collaboration in some special work is arranged by conference between the chiefs of appropriate departments. For example, the chief of the Department of Obstetrics in the college and hospital has charge of all of the staff of both institutions, and new appointments and promotions are made on his nomination. He controls all free maternity beds in the hospital, has a special clinic in the free dispensary, and the department operates a large out-patient visiting maternity service for the poor of Manila. This service is operated on an emergency basis, with motor transportation for physicians and nurses, and serves for practical instructions to graduate and undergraduate students of medicine, nursing and midwifery. The Department of Pediatrics is similarly organized, except that its social service work is limited to the free dispensary clinics. The Department of Medicine expands its social service work through affiliation with the Antituberculosis Society.

We have tried both the "ward unit laboratory" and the "centralized clinical laboratory" plans, and the latter gives us much better satisfaction both in practical work and certainly in teaching. All interns get clinical laboratory service as part of their rotation, and any member of the staff may do his own work in the laboratory if he so desires. The teaching of the subject for all students of medicine, nursing, etc., is carried on by the staff of the laboratory.

Nursing, with divisions of dormitories, housekeeping, subsistence, and practical nursing, is handled entirely by the faculty and students of the school. The principal of the School of Nursing is superintendent of nurses. There are four large dormitories—three for female

private patients. Any reputable physician may have his private patients admitted to this department. As a matter of fact, the space usually is kept fairly filled with private patients of the members of the regular staff, and therefore medical students see an unusual amount of work among the better class of patients. The most important phase of this service is that it furnishes opportunity for nurses and senior students to obtain necessary experience in this class of work, and it furnishes equal opportunities to the subsistence division and to specially selected interns.

The well-equipped manufacturing division of the pharmacy, the modern pharmacy bookkeep-



Fig. 11. Kitchen. Ground floor plan.

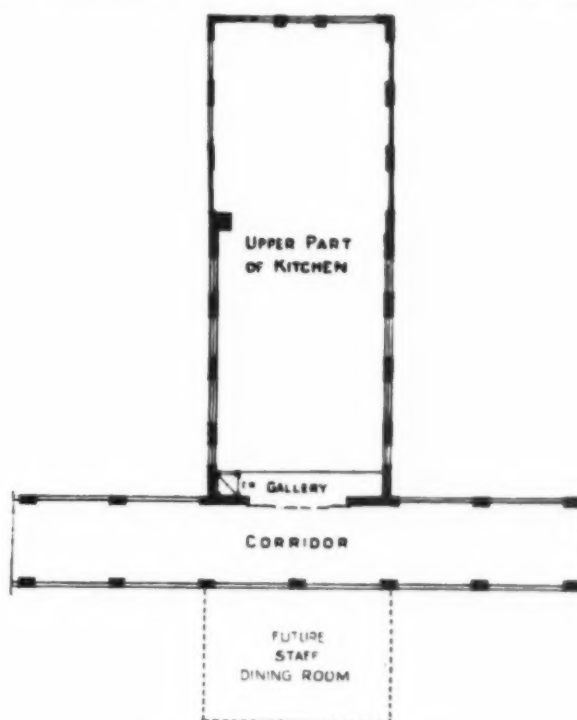


Fig. 12. Kitchen. Second floor plan.

and one for male nurses and students. These are managed by supervising nurses who are instructors in the school. The subsistence division handles the kitchen and teaches practical dietetics. Housekeeping and linen services are operated entirely from a centralized unit by two supervising nurses, who are also instructors in the school. Sewing, care, and issue and accounting for supplies are taught in this unit. The practical nursing division, with its supervisors, head nurses, and students, does all the work for the hospital. All supervisors and head nurses are teachers constantly on duty with their students.

The pay department of the hospital is separated in space and partially in personnel from the free-patient section. This department is largely a private-room service for the care of Government employees and the better class of

ing, including accounting under the Harrison Antinarcotic Law, the figuring of costs, profits, etc., of the pharmacy are used in instructing graduate students. Altogether, the coordination of teaching functions and practical work in this department leaves little to be desired.

Chiefs of college laboratories of fundamental science departments, like anatomy, physiology, etc., hold corresponding positions in the hospital organization, and are encouraged under proper collaboration with the clinical departments to investigate problems peculiar to their specialties. Conversely, clinical departments have courtesies in the laboratory departments, and collaboration in investigation is encouraged at all times. In a word, every semblance of a line of demarcation in interest or otherwise between college and hospital is destroyed by a common personnel, common interest, and united function. The only ex-

ception to this is in the control and expenditure of funds. College funds are under control of the Board of Regents of the university, while the hospital, being an independent administrative unit of the Government, has funds under control of the director. This is as it should be. A Board of Regents is too large and unwieldy a body to



Fig. 13. Pharmacy laboratory.

handle funds for a large general hospital, and fulfills its function in controlling the personnel of its staff.

ADMINISTRATIVE DEPARTMENTS

The more strictly business departments of the hospital, such as finances and records, property and supplies; engineering and general service, have each a definite organization, with a chief, the necessary assistants, and facilities and re-



Fig. 14. Free maternity ward.

sponsibilities commensurate with the duties to be discharged. The stand is taken and maintained that business efficiency is as necessary in a hospital as it is in a commercial house, and in carrying out this policy, we have been able to produce strikingly economical administration.

THE GROUNDS AND BUILDINGS

The hospital has one of the most beautiful locations in Manila. The campus, which is a common one occupied by the hospital, College of Medicine

and Surgery, and the Bureau of Science, covers six city blocks. It was formerly an exposition ground, and is well shaded with acacias and otherwise made beautiful with sunken gardens, palms, and shrubbery. Adjoining the campus is that of the University of the Philippines on one side and the observatory on another. The hospital fronts on Taft avenue, one of the main boulevards of the city. The block plans of the campus, showing all present and future buildings, may be seen in Fig. 1. More detailed ideas of



Fig. 15. College of medicine and surgery.

the construction of various pavilions and units are given in the various illustrations.

The physical arrangements for the utilization of space are excellent. The unit construction is peculiarly adapted to the warm climate. The long open corridors and porch-surrounded wards assure convenience, perfect ventilation, and architectural beauty. All construction is of reinforced concrete, with massive walls and red tile roof.



Fig. 16. Lobby and information service.

Architecturally, the two-story pavilion plan of construction, with connecting wide corridors, is carried out throughout the plans. This type of architecture has two faults which readily suggest themselves to the experienced hospital man. They are, first cost and expensive service due to long distances between units. Except for the very

cheap labor of this country, the cost of cleaning and conducting the various unskilled services of the hospital would be prohibitive, to say nothing of the increased nursing service such construction demands. From every other standpoint this form of construction is ideal, and in this hot country the disadvantages are overcome by the increased comfort and ventilation assured all patients and employees.

ADMINISTRATION BUILDING

The building (Fig. 2) answers its purpose very well. The first floor contains the administration offices, reception room, and postoffice. In the lobby is located an information center, which is the heart of the whole hospital. This office is headquarters for the chief of the general service department, which controls telephones, information service, messenger service, transportation, gardeners, and employs and discharges all labor. A supervising nurse also makes her headquarters here, and is in constant touch with all branches



Fig. 17. Histology laboratory.

of her service and with the public. One end of the second floor of this building is made into quarters for the house staff and the other end is the library.

WARD UNITS

The general plan of the various ward units is the same throughout the building. There are interior modifications to meet the requirement of special services, such as private rooms, maternity wards, etc. The floor plan of unit 8 is shown in Fig. 4.

SURGICAL BUILDING

The floor plan of this unit is shown in Fig. 7. There are two operating units, with amphitheatres for clinics—one private and one emergency operating unit. The special examination unit for eye, ear, nose, and throat, and general dark room are well equipped. The roentgen department and clinical laboratory also are in this building.

PHARMACY AND DISPENSARY BUILDINGS

The plans for these are shown in Fig. 8. With the alteration in structure and rearrangement of space made during the year, these buildings are very satisfactory. With the large increased space assigned, however, to the dispensary, the clinics are beginning to be overcrowded, and provision was made for the building of an annex during 1916.



Fig. 18. Manufacturing pharmacy.

TEACHING FUNCTIONS

The College of Medicine and Surgery of the University of the Philippines conducts all teaching activities through the School of Medicine, the Graduate School of Tropical Medicine and Public Health, the School of Pharmacy, the School of Dentistry, and the School of Nursing. These schools are all departments of the Government university and the practical instruction in all of



Fig. 19. Teaching diet kitchen.

them is carried on in the Philippine General Hospital, Free Dispensary, and out-patient services. Such a volume and variety of educational work is carried on efficiently without friction or confusion only by close blending of the organization of the college and hospital, and by the united control of both institutions under one executive head.

EFFICIENCY

It is the policy of the hospital constantly to strive for ever-increasing efficiency, to encourage economy as distinguished from parsimony, and to investigate promptly every complaint or criticism. All officers and employees are urged to offer suggestions for the improvement of the service in any department. Recommendations or suggestions leading to economy without impairing efficiency are particularly welcome. Employees offering suggestions which are later adopted receive credit for them on their efficiency reports.

EFFICIENCY MEDALS

In order to emphasize the importance of efficiency and to keep it constantly and attractively

before employees and students, a system of rewards of medals for meritorious service was introduced, and has been in effect for several months. Efficiency medals are awarded on a basis of (a) aptitude, adaptability, and intelligence; (b) loyalty and cooperation; and (c) efficiency. The medal may be worn for one month. Chiefs and assistant chiefs of departments and divisions, members of the staff, and supervisors are not considered in this plan. The medals are awarded publicly at a general meeting of the staff, and there is a healthy spirit of competition among the beneficiaries for the honor of wearing the medals. The medals for December were awarded by the governor-general, and his indorsement has made the policy a more useful and attractive one.

HOW MUCH COAL DOES A PATIENT COST?

Power Plant Economies Mean More Money for the Care of the Sick—Discussion of Types of Fuel Consumers and the Results

BY R. C. BEADLE, CONSULTING ENGINEER, NEW YORK

THERE is probably no authentic information on file giving the average cost of producing power in hospitals. This situation is primarily due to the fact that each hospital operates under somewhat different conditions from those of every other hospital, and average figures in such a case are difficult to obtain.

It has been asserted on competent authority, however, that for hospital maintenance in the United States approximately \$250,000,000 per year is expended, serving from 400,000 to 600,000 patients, and that \$250,000,000 a year is spent in the construction of new buildings. If we take into consideration hospitals that treat other than general cases, and include tuberculosis hospitals and hospitals for the insane, these figures could be approximately doubled.

There is probably no activity of man that calls for a more careful study of the plan and service than does the construction and administration of a hospital plant. When considering its real function as the human repair shop which saves annually the lives of thousands of patients, restoring their earning capacity and their value to the community, we can truthfully say that too much attention cannot be given to the best methods of equipment and administration. The factor of cost should never be weighed against any method or means that can restore more of these patients quickly and comfortably to the community.

A hospital being an institution for the most expert practice of medicine, when we think of such an institution and the expense involved in main-

taining it, the layman, at least, naturally assumes that the cost of medical supplies and administration is the largest and most important factor in the budget. That this is not the case the physician will readily appreciate, but there should be at all times a constantly increasing fund to place at the disposal of the medical man, additional facilities for research, and funds for additional equipment in these most important of all workshops. As an instance in point, one of the greatest hospitals of the United States spends two-thirds of the sum that is required for medical supplies on the single item of fuel to operate its power plant and heat its buildings.

Modern industry, during the past five or six years, has studied this problem of efficiency in the power plant, and in many cases has shown that remarkable economies are possible. If, for every dollar expended, it costs an average hospital 7 cents, we will say, for power, and 10 cents for medical supplies; and if, by spending a little thought and some money on proper means of checking up and operating the boilers in the modern way, it is possible thereby to take 1 cent from the cost of the fuel item and add it to the medical supply item, is it not fair to say that that hospital would benefit doubly, first, in the percentage of saving in the expenditure for fuel, and, second, in the percentage of increase in funds available for medical supplies, and, perhaps, a broader opportunity for research work on the part of the staff?

In the construction of such a building as a hos-

pital the folly of cheap equipment and cheap design should be studiously avoided; only the best can be safely used.

The best is not necessarily the most expensive, but it is essential that the medical staff, the consulting engineer, and the board conduct very careful investigations at the outset to determine the equipment in all departments that will give the maximum results with the least amount of trouble and the least possible chance of its being out of service at a critical moment, and at the least possible cost for upkeep.

A vital part of the construction, and more vital to the operation of any such building, is its power plant. That power plant, if improperly designed, can eat up, in the course of a year, funds that should go to the general purposes for which the building exists. A little careful thought and investigation at the beginning will, in the course of a few years, very often pay many times over the cost of equipment of the power plant, just as well as it oftentimes pays its cost in the manufacturing plant.

In considering the power plant of such a building we naturally have to make three divisions:

1. The small hospital serving a limited population and having few beds, which either has no power plant at all, or a plant designed merely for the purpose of heating. Such a plant we may safely disregard in so far as the purposes of this article are concerned.

2. The plant that serves, we will say, 300 to 350 beds. Such a plant of necessity would have to take care of a refrigeration plant, a sterilization plant, the heating of the building or buildings, the electric light plant, the laundry, etc.

3. The very large hospital located at a great center of population, having all of these factors to care for, but in a much larger capacity.

In the case of the first hospital, the question of the design and equipment of the furnace and grates is of minor importance. As the capacity of the plant increases, however, the importance of proper design and equipment in the power plant increases in a greater ratio than the ratio of increase in size. As we approach the plant that would be covered by our second citation, we would approach that stage in hospital design at which the consulting engineer, well versed in the problems of combustion, should be consulted.

That is, it is wasteful to install any equipment but that which is best suited to the needs of a given condition; right here it might be illuminating to cite the instance of an apartment house building which had been put up on the theory that a grate bar was a grate bar; while the greatest attention was given to all points of service and

appointments. When it came time to operate the building, it was found that during the severe winter months it was impossible to make enough steam to serve the needs of the building. Tenants were being lost; something had to be done. A combustion engineer was called in. He studied the plant and recommended that a certain type of grate be installed, which was done. The total cost of the change was between \$600 and \$700, and the net result of this change was the supply of adequate heat at all times to all parts of the building, and a saving of \$42 a month in the cost of fuel.

This saving could have been just as well effected from the beginning as a year after the building was up; it was a case of improper advice and lack of information at the start. The cost in dollars and cents in correcting that mistake was insignificant when compared to the damage in reputation to the real estate caused by the failure of the power plant at critical times.

In the smaller plant that is not of sufficient size to warrant mechanical means of firing the boilers, careful study should be made of the available coal supply, and the average cost of the cheaper fuels in the territory in which the building is located, for, with proper engineering and design, the low-grade fuels can be, and are, successfully burned with remarkable economy.

An expert in combustion should be called in to advise as to air spacing of the grates, and general grate design. In cases in which the grates are purchased in conjunction with the boiler, it is oftentimes advisable to specify, after the information is in hand, the type of grate which you wish the boiler contractor to supply.

In some districts it will be found that hard coal, with forced draft, can be successfully employed. In some cases it will be found that it is an advantage to design the plant to make use of natural draft, but with an auxiliary equipment of forced draft to take care of any excess in the load. In such a case it would be possible to operate a much smaller boiler unit under normal conditions, and slightly force the boiler during the few hours in the evening when the lighting load or any other demands for steam made it desirable to increase the boiler plant's rating, by simply turning on the blower. This is done in many small manufacturing plants. In the case of the larger plant, mechanical methods of firing should by all means be adopted.

In laying out such a plant the ideal plan, of course, would be to design a boiler room removed some distance from the buildings of the hospital proper, and to install boilers that would carry the load at a little above its lowest average, because by means of mechanical firing, the forcing of the

boiler beyond its normal rating is extremely simple, and, if not carried to extremes, more economical than operating boilers at rating.

Such a layout has the additional advantage of saving a not inconsiderable sum of money in the first cost, in that we are often able to eliminate one or more units; and it must be borne in mind that by those eliminated units we not only save the first cost of the boiler, but inasmuch as these large institutions are generally in centers of population where realty values are high, we also save on the size of the boiler plant, and thereby reduce charges for taxation, as well as depreciation and upkeep.

In considering the best method of accomplishing these results we naturally come to the consideration of the type and class of apparatus to be used. This should be determined by the general conditions in the locality in which the plant is situated, labor conditions, funds available, and the load factor.

There are three general basic principles on which devices of this sort operate, and, without citing any particular apparatus, it is the purpose of this article to give in a general way an outline of the results accomplished, and the method of operation of such devices expressed in terms that may be readily understood by the medical man responsible for the operation of the hospital, by the members of the board of governors, who are responsible for its administration, and by any others who, though interested in the efficiency and economy of the institution, are not sufficiently versed in technical terms to grasp with any degree of comprehension the various treatises by mechanical engineers upon this subject.

Mechanical means for firing fuel were first developed by English inventors back in 1848-49. The first mechanical stoking apparatus embraced a hopper placed in front of the furnace above the furnace door which was designed to be filled with fuel, and the fuel deposited on a dead-plate in the front of the furnace by means of pulling out a sliding door in the hopper. The purpose of this design being to introduce green fuel into the front end of the furnace in such a way as to enable the gases which are distilled as the coal comes in contact with the heat, to pass over the incandescent fire-bed and be consumed as they travel toward the stack, thus avoiding the necessity of opening the furnace door and reducing the temperature of the furnace by introducing green fuel on *top* of the fire, thereby reducing the efficiency of the furnace.

At about the same time, generally speaking, the idea of the traveling or chain grate was developed, the chain grate being a device made up of a series

of grate bars attached on each side of the furnace to a moving chain. The coal deposited on the grates by means of a hopper at the front end of the furnace is conveyed very slowly into the furnace and ignited as it went along, as the rear of the furnace is reached the resulting ash is carried over into the pit below. The chains are actuated by sprocket wheels, which were in turn mechanically driven. This type of stoker is, with many improvements and refinements, installed in many parts of the country today. On certain grades of coal it is very successful; one of its limitations, however, is that it is usually designed to be operated with a natural draft. It can be materially increased in its value in the power plant by so designing as to embrace the use of forced draft, thereby having the additional advantage of a more sensitive control.

There are probably at least half a dozen makes of this apparatus on the market, and it will be found that the engineering departments of these concerns are ever ready to supply a surprising amount of detailed information without cost to the owners of power plants throughout the country who have evinced their interest in improving their conditions.

A distinctly different type of apparatus is that known as the overfeed stoker. There are some four or five companies manufacturing these devices, all of which are on the same general principle. A hopper is placed rather high up on the front of the furnace, and a grate resembling a flight of stairs with steps placed close together in general design and agitating the fuel by the means of either a movement of the steps, or by special "fins" or "fingers" placed at intervals along the grate, keep the fire-bed agitated so that the ashes are ultimately deposited on a plate at the back of the furnace which is dropped by the movement of a lever at convenient intervals, by the firemen, and the refuse discharged. This stoker is also designed for use with natural draft, and it is only in rare instances that this design is ever modified to embrace the use of forced draft, and then usually on the request of the purchaser.

Generally speaking, these two types of stoker, while delivering excellent results in the main, have two inherent weaknesses with which mechanical ingenuity has so far been unable to cope. This is the maintenance cost and the trouble which is sometimes given with certain grades of coal in removing the ash from the back end of the furnace. At the back end of every furnace is what is known as the bridge wall, constructed of brick. This portion of the furnace is under very high temperature, and in some coal there is a high content of sulphur, which has a tendency to "fuse"

with the ash and form a clinker. These clinkers sometimes take such proportions as to choke the dumps before they can be removed. They are then apt to fuse to the face of the bridge wall, so that considerable labor is necessary in cleaning the fire. Practically the only successful means so far used to any great extent to overcome this condition is the placing of a waterback in the bridge-wall in such a position as to keep this part of the furnace sufficiently cool to prevent the adhesion of such clinker. While this accomplishes the desired result, it increases the first cost of installation and increases the cost of operation.

In any mechanical device for feeding coal we have certain moving parts, certain delicate construction, and a tendency in some cases toward a complication of mechanism which is not desirable in a furnace. The overfeed types of stoker and the chain grate have a peculiar advantage in that they are not particularly overburdened with these weaknesses, although some types are more expensive in their maintenance cost than others.

The next division is the underfeed type of stoker, of which we have at least five different designs, all operating on the same general principle, but accomplishing different results by different means.

The underfeed principle of firing is one of the oldest mechanical principles in stoker design and construction. It has had a long period of development, and has the advantage of being a logical method. The coal by this method is introduced into a hopper, as in the other stokers, but instead of being introduced at the top of the furnace and precipitated toward the rear by gravity assisted by certain moving parts, it depends entirely on mechanical means for the feeding of the furnace. The coal introduced into the retort is so charged that it fills the retort and overflows on each side continuously; as it is then pushed up underneath the fire, a current of fresh air is forced through openings at the sides of the retort and mingles with the gases which are distilled from the coal as it moves upward toward the incandescent fire bed. These gases then travel on through the fuel bed, and, having been properly mixed with the oxygen, are readily consumed. In this point the underfeed types of stoker undoubtedly have a tremendous advantage over the stokers which introduce the green fuel on top of the fire without regard to a proper mixture of fresh air, and depending upon the furnace temperature and natural draft to consume these highly combustible gases before they have a chance to be chilled by contact with the boiler on their way to the stack. It is because of this recovery of gases that the underfeed manufacturer is able to make guarantees that far out-

strip any other method, in so far as efficiency is concerned, and particularly in so far as he is able to guarantee the boiler to continuously maintain high overloads.

In speaking on this point of overloads it is proper to mention here that by overloading the boiler we do not mean strain it in any degree. It might more properly be said that the underfeed type of stoker embracing forced draft overrates the boiler rather than overloads it. With fire of a certain temperature burning coal at a certain rate of combustion, so much water can be turned into steam in a given time; if it is possible to make the fire twice as hot or burn coal at a higher rate it is also possible to make steam faster, and in many cases, in the great central stations, for instance, guarantees are required which will enable the operator of the boiler to make steam with a stoker three times as fast as with a hand-fired grate. Thus is illustrated the point of saving in the units installed by installation of stoking apparatus best adapted to meet conditions.

To illustrate, we will assume that a certain plant is designed to have four 300 H. P. boilers, hand fired. Your combustion expert comes along and tells you that if you install an overfeed type of stoker you can operate this entire plant with three 300 H. P. boilers, and that if you install an underfeed type of stoker at increased expense, you will be able to operate this entire plant with two 300 H. P. boilers. You will then have before you a simple example in mathematics to figure out—whether it is more economical to install a stoker that will give you satisfactory results with limited capacity at a reduced cost, or a stoker at an increased cost that will double your capacity and give you absolute flexibility in the power plant.

There is no power plant in the country in which it would be impossible to show some economies; in some plants where boilers are being hand-fired it is not unusual to find that these boilers are operating at 50-percent efficiency, and that the losses thus entailed represent a considerable proportion of the actual money expended in coal and labor. It is, generally speaking, however, untrue to make the statement that the main advantage from any method of mechanical stoking is primarily traceable to the economies in labor. There are undoubtedly hundreds of hospitals throughout the country which could effect a material saving in the operation of the power plant, but which could not under any consideration get along with fewer men than they now employ. This statement is particularly forceful at this time when the price of coal has advanced materially, and there seems to be no relief in sight.

I have in mind the case of two manufacturing

plants in which the saving in fuel alone amounted to over \$20,000 each, simply by the increased efficiency that mechanical stoking was able to give.

There is another false impression that has somehow gained headway among many to the effect that it is not permissible in large cities to burn bituminous coal; this is an error. I am familiar with this subject, and know of no community that has such a law upon its statute books. Practically all progressive cities have placed upon their books, however, laws governing the emission of soft-coal smoke, and prohibiting a stack from smoking more than a certain number of minutes in any given hour. All of the stoker manufacturers of any type guarantee their apparatus against smoke.

In the case of the overfeed type a brick arch is placed in the front of the furnace, which overhangs the fire for a short distance, and this arch is so designed that it heats up very quickly and becomes incandescent. The gases which ordinarily make up smoke flow against this arch on their travel to the stack and its incandescence consumes them.

In the case of the underfeed stoker the gases are consumed as they pass through the bed of red-hot fuel automatically mingled with fresh air in an automatically predetermined quantity, insuring their elimination.

All stokers will smoke if forced beyond their designed capacity, particularly the natural draft types. The underfeed types have a larger range over which they will operate than have any of the overfeed machines, and are much better, generally speaking, in preventing smoke, as is proved by the experience of large power stations throughout the country.

Thus we see that the problem of proper combustion reduces itself to one of forethought and proper design; and in my mind the hospital board should give as much attention to the prosaic problem of its fuel supply, its method of burning it, and the elimination of smoke, as it should to the design of its operating room, and the purchase of supplies in its medical department, for the money that is spent should show results, whether in the medical department or in the power plant.

It may be interesting to the reader to see a concrete table of a typical plant, perhaps somewhat larger than the average, but one which will give the general scale of the economies between the low-efficiency hand-fired method and the maximum efficiency attained by modern methods.

In the case of the hand-fired plant a little better than average conditions prevail, and in the case of the same plant stoker-fired a general good average condition is cited.

COMPARISON OF COST OF HAND-FIRING AND STOKER-FIRING

Installation cost—

Stokers	\$ 8,000
Coal and ash handling system.....	2,000

Investment cost	\$10,000
Interest	5 percent
Depreciation	10 percent
Maintenance	1 percent

Charges against investment.....\$1,600=16 percent

Labor cost, hand-fired—

4 men day, 3 men night—7 men at	
\$3 for 365 days.....	\$ 7,650

Labor cost, stoker-fired—

2 men day, 2 men night—4 men at	
\$3 for 365 days.....	4,380
	<hr/>
	\$ 3,270

Coal cost, hand-fired—

8,760×38 percent load factor	
1,000	3,320,000 H. P. per hour
Coal per year at 60 percent	
efficiency (13,500 B. T. U.)....	13,720,000 per hour
Coal per year.....	6,140 tons

Coal cost, stoker-fired—

Cost per year at 73 percent	
efficiency (13,500 B. T. U.)...	11,320,000 pounds
Coal per year.....	5,300 tons
Coal saved by stokers.....	840 tons
Amount saved by stokers 840×\$5...	\$4,200
Amount labor saved by stokers....	3,270

	<hr/>
	\$7,470
Labor saving	\$7,470
Less charges against investment...	1,600

Total amount saving.....\$5,870

A return of 58 percent net on the investment.

Thus it will be seen that in the case cited at least 50 percent of the annual expenditure in the boiler plant could be saved and averted to other purposes, and at the same time bring the power plant to a higher general state of efficiency.

These are the days of getting the most for the dollar. Efficiency and capacity are the keynotes of 1917 success, and it would seem that, inasmuch as the majority of the large stoker companies maintain engineering departments designed to give expert information on the question of fuel consumption and power plant efficiency without cost, the progressive hospitals throughout the country should take advantage of this service and ascertain whether they are getting full value, dollar for dollar, in the power plant. If this were done, I am confident that the savings which could be guaranteed would range anywhere from 10 percent to 30 percent, and in some cases perhaps higher, and this assumption is not based upon a guess, but upon a reasonably long experience in meeting conditions of this kind in power plants throughout the country.

Some people don't believe in the germ theory of disease. The fact that some folks still think the world is flat doesn't take any of the curves out of the globe.—Illinois Health News.

THE TUBERCULOSIS PREVENTORIUM FOR CHILDREN, FARMINGDALE, N. J.

An Institution for Preventing the Development and Spread of Tuberculosis Primarily Among Children—The First of Its Kind in the Country—Care of Infants of Tuberculous Parents a Unique Feature

By J. PALMER QUIMBY, SUPERINTENDENT TUBERCULOSIS PREVENTORIUM FOR CHILDREN, FARMINGDALE, N. J.

HAVING been informed of the large number of poorly nourished children in families in which one or both of the parents were tuberculous, in March, 1909, Mr. Nathan Straus offered to give a half interest in the Lakewood Hotel property at Lakewood, New Jersey, to be used for the care of such children. This action was taken through the intercession of Mr. Marcus M. Marks, who immediately organized a board of directors composed of leading physicians, prominent women,

about 40 beds was established. These buildings, since altered and extended, are being used for reception quarters.

The institution was organized primarily for the care of poorly nourished, underfed children, exposed to tuberculous infection in their homes, who had already contracted tuberculosis, as shown by a tuberculin reaction, but who had no open disease. At this time no similar institution existed in this country.

There was no place to send these children; in the summer some could be sheltered for a few weeks in fresh-air homes; in the winter a very few could be sent out of the city by unusual effort, but there was no institution in New York or in the United States specially designed for the care of this large group of afflicted children. Such was the basic social condition which led to the foundation of the preventorium.

At the preventorium in Farmingdale, New Jersey, over 180 children are accommodated. They



Fig. 1. Administration building, Tuberculosis Preventorium for Children, Farmingdale, N. J.

and men of affairs. Mr. Marks was selected first president of the institution, and its subsequent development was in a very large measure due to his enthusiasm, devotion, and untiring efforts during the trying period of organization and construction.

The Cleveland Cottage, connected with the Lakewood Hotel, was at once altered to accommodate 40 children, and a simple open camp erected. The first children were admitted to this on July 2, 1909. Later considerable opposition developed to the establishment of the preventorium in Lakewood, and the board of directors, after careful consideration, determined to seek another location. Mr. Arthur Brisbane then offered to the board of directors a farm of 170 acres, located near Farmingdale, New Jersey, seven miles north of Lakewood, to be used as a site for the institution. The board of directors gladly accepted this offer. A small farm house situated on this property was remodeled for temporary use, and the children transferred to the new site on April 28, 1910.

Additional open-air sleeping porches and tents were added, and thus a small preventorium with

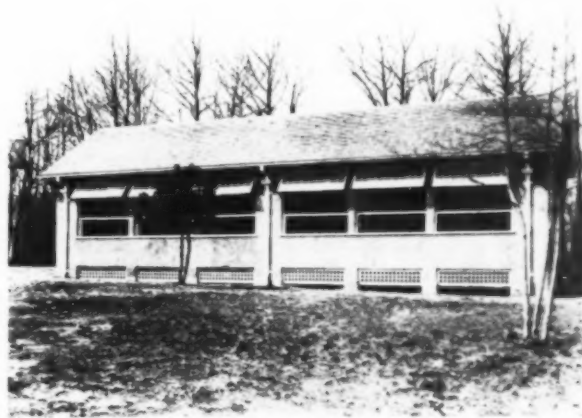


Fig. 2. Exterior of open-air school, Tuberculosis Preventorium for Children, Farmingdale, N. J.

are kept for an average period of four and a half months, so that the institution provides annually for nearly 600 children.

In addition to a reception pavilion, where all children are quarantined for three weeks in order to prevent infection of the large group, there are four open-air shacks, each accommodating 32 children, a small infirmary, school buildings, a large administration building, with dining room which seats all of the children, and last, but not

least, 170 acres of land in the sandy pine belt, over which the children roam and play.

Children are accepted between the ages of 4 and 14 years, so that it is necessary to provide school instruction for them in order that they may not be behind in their studies when they return to school in the city. There are at the preventorium three licensed teachers, and a two-hour school period is provided. This amount of instruction—ten hours a week—has been found sufficient to keep the children up to public school grade.

This mental invigoration of the children is to be attributed to the improvement in their physical condition, and to the stimulating effect of the open-air school. In addition to the general in-

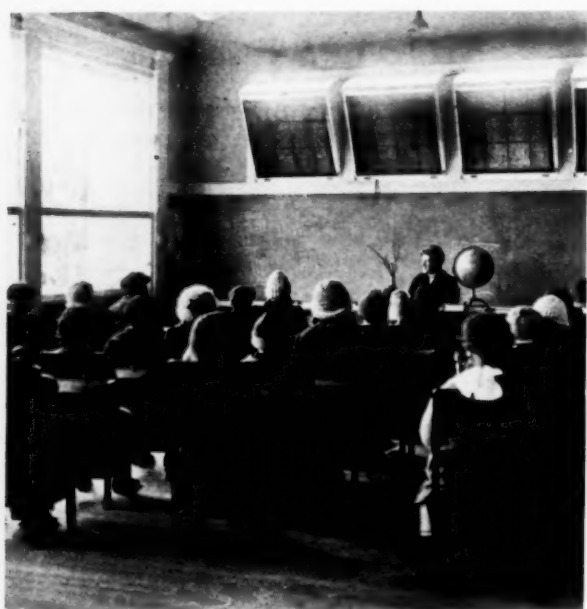


Fig. 3. Interior of open-air school, Tuberculosis Preventorium for Children, Farmingdale, N. J.

struction, the girls have their sewing classes, and in the summer both boys and girls have their class gardens.

The work of the Farmingdale Preventorium is intimately connected with that of the many tuberculosis clinics of New York. During the stay of the children at the preventorium the conditions in their homes are investigated. This is one of the most difficult problems encountered in the work. Some homes cannot be improved. Others can be bettered by sending the tuberculous member to a sanatorium, by giving instruction in cleanliness and hygiene and the proper disposal of sputum, and by considering needs with relief organizations and obtaining aid or additional assistance. Every six months after discharge the children are to be revisited in the home and their physical condition and surroundings noted. It may be said, however, that the children maintain their improvement in weight and strength surprisingly

well; that they are taught a lesson in hygiene, and that a method of healthful living is demonstrated to them which can never be forgotten; that not only the advantages, but the pleasure, of life in fresh air have been instilled into their very natures.

The executive committee of the preventorium,



Fig. 4. Open-air sleeping porch, southern exposure, Tuberculosis Preventorium for Children, Farmingdale, N. J.

at first with some hesitation, determined to help the general tuberculosis campaign by giving employment by preference to tuberculous patients with arrested disease—those who had been discharged from the various sanatoriums. At present there are at Farmingdale 15 people of this

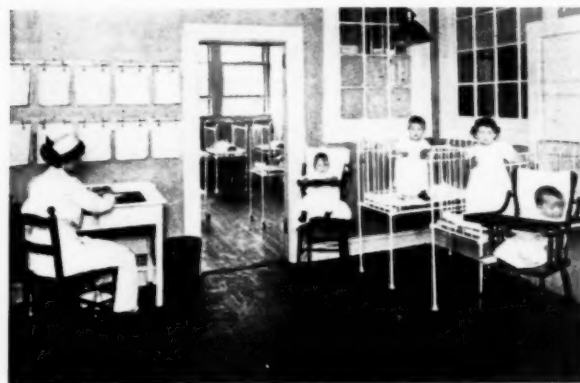


Fig. 5. Corner of the infanterium, Tuberculosis Preventorium for Children, Farmingdale, N. J.

class. Occasionally one of these cases has relapsed. The plan on the whole has been successful, and the preventorium has reason to feel much encouraged in what may be called its auxiliary work.

The preventorium derives its support partly from the voluntary contributions of friends, and partly from a per capita allowance from the city.

In 1914 there were at one time 200 children in the preventorium; these children represented 120 families. The visit to the institution of a tuber-

culous mother, carrying her infant in her arms, suggested that it would be of interest to inquire how many more infants under the age of 2 years there were in the 120 homes. The result of the inquiry showed that there were 42 infants under 2 years in these homes. In very many homes there was more than one member suffering from tuberculosis, frequently in the second stage of the disease.

We find in practice that it is feasible in only a few cases to safeguard the home by sending away the tuberculous member of the family. The mother cannot be spared from the household, for the very reason that she has the infant to care for, as well as because there are usually other children. (The mother constitutes the tuberculous member in over 50 percent of our cases.) After diligent inquiry as to what could be done to remove these



Fig. 6. Improved infantorium beds designed and made at the Preventorium, Tuberculosis Preventorium for Children, Farmingdale, N. J.

infants from their infected homes, the question was put to a member of the Department of Public Charities. He answered: "In so far as I have been able to gather, and I have caused inquiry to be made, at the present time we have no agency or institution in this city equipped to care for the particular class of children you describe."

To make a beginning in this direction the preventorium arranged to use a portion of a building for infants. A nursery was equipped for the care of 12 infants, and up to the present time has proved successful. Since May 1, 1915, there have been admitted to the preventorium, or rather to the "infantorium," 32 infants of tuberculous parents. The mothers of ten of these infants died of tuberculosis during the stay of the baby here, and one father also died of tuberculosis.

Infants remain in the charge of the institution for a period of one year. During this time they practically live in the open, and their resisting power is materially increased.

It is hoped that after the nature of the institution's work is understood it may act as a stimulus to the organization of many more preventoriums and infantoriums in the large municipalities of the country.

Not Advertising Flour

A well-known brand of flour is advertised by this slogan: "Eventually—why not now?"

Judging from the experience of other states, as well as the experience of the more progressive cities and towns of Illinois, there are certain things which are coming to your town. They are coming in the hope that they will be warmly welcomed and encouraged; but, whatever be their welcome, as a part of the march of progress, they are coming. We may delay them—just as the advertising agent imagines we may delay the purchase of his chosen flour; but eventually they will come. WHY NOT NOW? These things are tried and tested. They have gone through the experimental stage. There are no "ifs" and "ands" about them. In progressive civic affairs they are as sound as the Rock of Gibraltar. Every progressive town will encourage them. No unprogressive town can successfully battle against them.

Community nurses, public health nurses or tuberculosis nurses.

Free tuberculosis dispensaries. Not for paupers; but for those whose means have been curtailed by this decidedly "pauperizing disease."

County tuberculosis sanatoria.

Full-time medical health officers for the larger communities; medical health officers—free from the irksome restrictions of nonmedical boards of health—in all communities.

Decent compensation for the health officer who protects the lives and health of the community.

Health officers who will assume all of the authority—and, incidentally, all of the responsibility—for the control of communicable disease.

The abolishment of the health officer who is not qualified in preventive medicine, or the health officer who holds the job on account of his infirmities and deficiencies.

The divorce of politics from the local health department. The man who has nothing but politics as his claim upon the office should never have been appointed. This should be borne in mind in appointing his successor.

Investigation of local sanitary conditions, which means a local, searching, honest, sanitary survey. The garbage can of the banker smells as offensively as that of the lowliest citizen. Disease plays no favorites.—Illinois Health News.

Dr. W. D. Runyon, who for the last two years has been on the medical staff of the Union Printers' Home at Colorado Springs, Colo., assumed the duties of medical director at the Woodbury County Tuberculosis Hospital, Sioux City, Ia., February 1. Dr. Runyon was assistant superintendent of the Iowa State Sanatorium at Oakdale for three years.

Miss R. E. Driver, a graduate of the Buffalo General Hospital, Buffalo, N. Y., has opened a small private hospital at 399 N. Thirteenth street, San Jose, Cal. Miss Driver formerly conducted a hospital at Watsonville, Cal.

AN EXPERIMENT IN COOPERATIVE CARE OF THE INDIGENT SICK**Organization of the Local Profession to Take Over Community's Sick by Business Arrangement with the County Supervisors—How Funds Are Expended and Work Done**

BY W. B. SMALL, M. D., F. A. C. S., WATERLOO, IOWA

AT the spring meeting of the Blackhawk County Medical Society, in 1907, a committee was appointed and instructed to go before the county board of supervisors at the April meeting, and to underbid anyone who put in a bid to do the county poor work. This committee went before the board of supervisors, secured the work at the price of the offer of the highest bidder and entered into an agreement with them for one year.

Under the terms of the contract the medical society was to furnish, through its members, to the sick county poor, including the county farm and the county jail, all necessary medical and surgical service, including medicine and surgical dressings, but excepting and not including attendance on cases of small-pox, and not including the furnishing of antitoxin. For this service the society was to receive \$830 per year, payable quarterly to the treasurer of the medical society.

The reason for the appointment of this committee at the April meeting was the custom, which I believe is general throughout Iowa and other states as well, and which seems to have received the encouragement of the county supervisors, for the physician or physicians who want to do the county charity work, to submit sealed bids to the board of supervisors at their April meeting, the supervisors entering into contract with the successful bidder to do the work for the ensuing year. The Blackhawk County Medical Society never had favored this way of doing the work, and had always discouraged the practice—sometimes by getting every member to sign a petition agreeing not to bid for the poor work, sometimes by persuading members not to bid without formally circulating a petition, and again by passing a resolution at a regular meeting declaring that a member in good standing would not submit a bid—of course the fellows who really wanted to put in a bid kept quiet. The majority of the members had thought, and still think, that when the contract calls for the work to be done by one person, the larger part of it is performed by the profession in general, leaving the minor or smaller part to be done by the contractor who receives all the monetary compensation. On the other hand, the board of supervisors thought that when the work was not done under contract, but each physician was allowed to do what charity work he was called to do, ren-

dering his bill accordingly, they were at times imposed upon by the unscrupulous. This suspicion was, I fear, too often well founded.

The result of this contention between the supervisors and the medical society was not always conducive to the best interests of the party chiefly concerned—the poor. I very well remember one occasion when the medical society had every physician lined up on a petition and they held fast, not one breaking away. The supervisors then contracted with the janitor of a Cedar Falls church who had received a license on account of having practiced the required number of years prior to the passage of the medical practice act. However, the real immediate cause of the appointment of the committee was the discovery that a member of the society who had formerly done the work had again bidden for it. It was then that a few of the members got together and formulated the plan of the county society bidding for the work.

After two years, the physicians of Cedar Falls and Hudson preferred to make their own arrangements to care for the poor in their respective townships. This being the case, in 1907 the Waterloo Medical Society bid for and secured the work in the city of Waterloo and the townships in which it is located. The stipulated price was \$600 per annum, payable quarterly. The society has received the contract for the work each year since, including the present.

A few years after the local society began doing the work, arrangements were made to include small-pox cases, the detention hospital and the city jail, with a corresponding increase in remuneration. For the year 1916, \$2,250 is the price agreed upon.

The avenue through which the sick reach the physician is the overseer of the poor or any member of the board of supervisors. Formerly the poor had the privilege of calling, through the overseer, the physician of their choice among the members of the society. The present arrangement of selection is to place in a receptacle the names of all willing members, excepting the specialists. The secretary draws a certain number of names for each month's service, allowing a larger number for the months of heavier work. A schedule of the year's service is furnished to the overseer, the supervisors and each member of the

medical society. However, even with this arrangement the sick still have the privilege of calling the man of their choice, and this is also the manner of assigning the work among the specialists.

The Waterloo Medical Society was organized in 1900 for the purpose, originally, of sociability and the oversight of matters of local interest. During the year 1912 a committee was appointed to revise the constitution and by-laws. This committee recommended incorporating, and asked for authority to incorporate, as well as to revise the constitution and by-laws. This power was given them, and on January 25, 1913, the Waterloo Medical Society was incorporated, not for pecuniary profit, under the provisions of Title IX, Chapter 2 of the Code of Iowa. We incorporated to be able to do business as an individual, and so that the individual members might be relieved of any financial burdens arising from mismanagement or other causes, as would occur under an unincorporated society. An objection was made to incorporating on the ground that the laity would point to it as additional evidence of a "medical trust." No such charge has come to our ears.

With the proceeds, instruments have been bought, a club room leased, and laboratories equipped. A full set of instruments was furnished for the operating room of the Presbyterian Hospital. They are kept in repair and are added to as requirements demand. The club rooms consist of finely furnished rooms suitably arranged for a meeting place. A large number of the leading medical journals are on file and a library has been started.

Roentgen ray laboratories have been installed in both hospitals and these are equipped with the latest apparatus and are owned jointly and equally by the hospitals and the society—the sole right of operating them resting in the society. Ten percent of the gross receipts goes to each of the hospitals for electricity. The current expenses, which include the salary of an assistant, if one be necessary, are then paid, and the remainder is divided equally between the Roentgenologist and the society. Thirty-five percent of the society's share is set aside as an x-ray fund.

The clinical laboratory is centrally located in the business section of the city and fitted out with all necessary modern appliances. The society was exceedingly fortunate in securing an experienced laboratory man, Dr. Guthrie McConnell, as director. He is guaranteed \$200 per month and 65 percent of the earnings over and above the current expenses and the \$200 guaranteed.

In the beginning, a roentgenologist was em-

ployed, but, this not being satisfactory, all the laboratories were placed under the supervision of the director of the clinical laboratory. Each laboratory is in charge of a committee of three which reports monthly to the society.

The clinical laboratory began work November 1, 1915, and the Roentgen laboratories in January, 1916. The time of operation has been too short to furnish any data of value in regard to their earning capacity. However, the earnings have been such as to encourage us and to lead us confidently to expect success.

This plan of taking care of the sick poor has been more satisfactory to the supervisors, to the poor and to the society than the old way. It may not be perfect, but it seems to be an excellent, practical plan, which presents many opportunities to the medical profession and to the people. A lack of funds is one of the things which interfere with the work of any society. This method of supplying the funds has its advantages and disadvantages, but is superior to any other method of which we have knowledge.

In the beginning some of the members thought that we would be doing a large amount of work for very little pay. Now, practically all the members believe that they do no more work than they did under the old system, when one man got all the pay and the others did the major part of the work without pay.

One of the problems of organized medicine is not only how to elevate the standard of efficiency, but how to raise our ideals. The plan outlined gives us not alone a way to obtain means to establish club rooms, suitable meeting places, libraries, and laboratories to increase our efficiency, but also funds to secure men of character, eminence and ability to deliver to us a series of addresses that will add to our knowledge and raise our ideals until we shall place service first and fee second and we shall obey the Master's command:

"Freely ye have received, freely give."

If Abel had only lived to construct the first infant metropolis, instead of Cain, doubtless he would have begun by laying out the streets, not east and west and north and south, as they usually are, but from northeast and northwest, to southwest and southeast. In this way the sun could reach all sides of a detached house and enter every window all year round. Even in a selfish city row, it could shine more surely and more generously into fronts and backs. The convenience of the surveyor does not outweigh the health of the householder.—Bull. Chicago School of Sanitary Instruction.

Miss I. Tautphaus has been elected superintendent of the San Francisco Home for Incurables, San Francisco, succeeding Mrs. D. Kidd, resigned.

COUNTY TUBERCULOSIS SANATORIUMS IN MINNESOTA

Attractive and Healthful Locations Chosen as Sites for Model Buildings—Excellence of Equipment—Rapid Extension of Work

By ROBINSON BOSWORTH, M. D., EXECUTIVE SECRETARY ADVISORY COMMISSION OF THE MINNESOTA SANATORIUM FOR CONSUMPTIVES, AND SUND & DUNHAM, ARCHITECTS, MINNEAPOLIS

A DECIDED change is taking place in the views held as to what accommodations should be provided in small county sanatoriums. While these institutions were new and their efficiency being established, many structures were erected which were sanatoriums or tuberculosis hospitals in name only. Those who have been in tuberculosis work for many years can recall that patients were often cared for and nursed and emergencies met under such conditions that it seems a wonder that the popularity of the institutional care of the tuberculous should have shown the steady growth that it has.

Our popular educational campaign against tuberculosis has impressed upon the minds of the public certain measures necessary for the cure of this disease: fresh air, abundance of good food, rest and exercise. We question the wisdom of ever mentioning the benefits of "exercise" in our popular campaign. It is probable that improper exercise has caused more failures in the cure than any other factor, and therefore should not be advised in a popular educational campaign. Our interpretation of "abundance of good food" has markedly changed in the past few years. The value of "rest" has changed its position to the head of the list, but we make the suggestion that the "rest" and "fresh air" be linked with "comfort." What inconvenience and suffering has been endured in the name of "fresh air"! The time is coming when more attention is being paid to comfort while our patients are obtaining "fresh air" and "rest."

The shack type of buildings as commonly erected does not in itself permit of proper care of those patients whose condition is such as to require nursing or special treatment. As a means of "increasing the capacity" of an institution or providing that degree of privacy desired by some patients of means, the shack can with special care, be made to serve ambulant cases. The shack type of institution is expensive to maintain. Proper supervision over the patients is difficult, and if the shack is constructed because of its cheapness, the upkeep is high and deterioration is rapid. These bad features outweigh the good ones, with the exception of privacy offered, and in county sanatoriums that degree of privacy is not desired.

In order to supply comfort, economy of opera-

tion, the highest degree of supervision over patients and to avoid rapid deterioration or loss by fire, all Minnesota county sanatoriums are two-story fireproof structures.

The location selected for the typical county sanatorium is usually upon the south exposure of a sunny hillside, overlooking some one of Minnesota's many beautiful lakes or rivers. Such a site is chosen with a view to affording the most picturesque and cheerful outlook from the front or south side of the building, the hill in the rear at the same time offering protection from the cold north winter winds. As it is desirable to locate the sanatorium a few miles out of town, such conveniences as water supply, sewer, and often, elec-



Fig. 1. A small sanatorium, typical of the plan adopted by the advisory commission of Minnesota county sanatoriums for the smaller institutions.

tric current, are lacking, and must be provided for in the building. This isolation also makes it necessary to provide accommodations for the superintendent, nurses, servants, janitor, and engineer. A fully equipped laundry is likewise necessary, even in the smaller institutions. Where the size of the institution warrants the expense, separate buildings are maintained for the power plant and laundry, and also for the nurses' and servants' living quarters.

The buildings for the accommodation of patients are of fireproof construction, two stories in height. Centrally placed in the first story is a large recreation room, containing a spacious fireplace. The patients' dining room adjoins the recreation room, being separated from it by folding doors which can be swung back, uniting the two rooms when desired. The office is so

situated that it commands the entrance, and also gives supervision over the recreation room. Examination, drug and nurses' rooms are located near the office.

Between the patients' dining room and the kitchen is a scullery where the patients' dishes are washed and sterilized before being returned to the kitchen. This room contains a steam sterilizer in addition to the usual scrapping table, sink and electric dishwasher. A separate dining room for servants opens directly off the kitchen, as well as a storage pantry containing the large refrigerator, cooled by a refrigerating machine in the basement.

The patients' rooms naturally occupy the south side, or front, of the building, so as to give them

lamp in the main office, and none of these signal lights is extinguished until the nurse answers the call at the patient's bedside. With the signal in the office, the nurse in charge has a check upon all calls, even though they be in some other building.

In detail, the keynote of the construction is simplicity, as in most hospital construction. The floors throughout are of terrazzo, with a coved base of the same material. The doors are of the flush type, without panels or mouldings, and the door frames are of metal, coming flush with the plaster and thereby doing away with the ordinary wood casings. All dust-catching surfaces are avoided as far as possible. Cupboards, diet kitchen refrigerators, etc., are recessed into the



Fig. 2. First floor plan of the sanatorium shown in Fig. 1.

the maximum of sunlight. The accessory rooms, such as diet kitchens, utility rooms, toilets and linen rooms are on the north side of the building, separated by the width of a corridor from the patients' rooms. The fresh-air treatment of tuberculosis makes it imperative that the patients' rooms have the greatest possible window area, so that the rooms may be made virtually porches. The windows are consequently divided into three sashes, so that when opened up, the sash occupies only one-third of the opening, instead of one-half, as is the case with the ordinary double-hung window. The windows are often arranged so that all the sash may be slid down into a pocket below the window sill, leaving the whole opening unobstructed. The patients' buildings are equipped with the standard signal system, so that a call from any patient's room lights a small signal lamp over the door to the room, and also registers at the nurses' desk on the floor on which the particular room is located. As a further precaution against unanswered calls, the call lights a signal



Fig. 3. Second floor plan of the sanatorium shown in Fig. 1.

walls above the terrazzo base, so that the doors are on a line with the plaster wall. As far as possible, the kitchen equipment is of metal, and is built especially to fit the space assigned. In this way the efficiency of the service is increased while cleanliness is assured, since all equipment fits closely into corners which otherwise might become dirt pockets. Where it is necessary for equipment to rest on the floor, as is the case with kitchen furniture, high legs are provided so that no trouble is experienced in cleaning the floor under such equipment.

The medical service is conducted by physicians with years of special training in sanatorium work. Even in the small sanatorium of from 20 to 40 beds, this class of medical service is provided. It has been necessary, however, to place two institutions closely situated under the care of one physician, when the capacity of each is too small to require or warrant the "whole-time medical superintendent." In such instances the superintendent of each institution is a graduate nurse with previ-

ous sanatorium experience. The physician spends two or three days in each institution every week.

In conjunction with this work free tuberculosis dispensaries are maintained in the larger towns or cities of such counties as maintain sanatoriums. The sanatorium physician is in charge. The dispensaries are open one day each week and receive, for advice or for diagnosis, those patients or suspects who may be brought by the visiting



Fig. 4. Recreation room and dining room, showing type of interior finish adopted in the Minnesota county sanatoriums.

nurse, or who may be referred by the medical profession of the community or by others.

A strong effort is made to examine, through the dispensary, all children from those families where tuberculosis exists, or has in the past existed. While this rural dispensary work is only a few months old, a large number of children have been examined and many positive cases found. The parents of these children are advised to send them to the county sanatorium where special arrangements are possible for their care. We cannot but feel that too little attention is usually paid these children in rural districts. In the cities, of course, the children are seen by the school physician or nurses, and nurses from the health department and dispensary. The children in rural communities have escaped our attention.

A vast amount of educational work must be done to convince people in rural communities that the visiting nurse should be received and listened to, that the dispensary is "safe and sane" and that we advise special care and attention for the child, for the benefit of the child now and in the future and not to be contrary to the opinion of any local influence in the community.

With the education of the public in mind, every opportunity is made use of to present health facts before them, through the daily papers, different social organizations, churches, medical societies and journals. The trained sanatorium physician

has a large share in the dissemination of health knowledge through public health talks and writings.

In the fall of 1913, one county sanatorium was receiving patients in this state, and one was partially constructed. At this time 9 institutions are receiving patients and 5 are under construction. These fourteen sanatoriums, as follows, serve the counties named: Sunnyrest Sanatorium at Crookston, Polk and Norman counties; Glen Lake Sanatorium at Hopkins, Hennepin county; Southwestern Minnesota Sanatorium at Worthington, Lincoln, Lyon, Murray, Pipestone, Cottonwood, Nobles, Jackson and Rock counties; Lake Julia Sanatorium at Puposky, Hubbard, Beltram and Koochiching counties; Buena Vista Sanatorium at Wabasha, Wabash county; Riverside Sanatorium at Granite Falls, Lac qui Parle, Chippewa, Renville and Yellow Medicine counties; Ottertail County Sanatorium at Battle Lake, Ottertail county; Mineral Springs Sanatorium at Cannon Falls, Goodhue county; Ramsey County Sanatorium at St. Paul, Ramsey county; Nopeming Sanatorium at Nopeming, St. Louis county; Sand Beach Sanatorium at Lake Park, Clay and



Fig. 5. Representative kitchen of a Minnesota county sanatorium.

Becker counties; Oakland Park Sanatorium at Thief River Falls, Roseau, Marshall and Pennington counties; the sanatorium at Deerwood, Crow Wing and Aitkin counties; the sanatorium at Wadena, Todd and Wadena counties.

These 14 sanatoriums will supply for a time the needs of 33 counties out of a total of 86 in the state. All will be enlarged in the near future, as has already been found necessary in four instances. Over 60 percent of the entire population of the state, upon the completion of the 14 sanatoriums, will have institutional provision for its tuberculous.

One-half the cost of construction and equipment has been paid out of state funds, the counties

paying the other half in 12 instances. In the two cases in which construction was completed or begun before the fall of 1913, \$500 has been paid by the state to the county for each bed provided.

Towards the maintenance of all county sanatoriums the state pays \$5 per week for each free

case cared for. State aid is paid only after certain conditions as to construction, equipment and maintenance have been met. The standard of these county sanatoriums is of a high degree, seldom, if ever, found in the past in institutions of like character.

THE SMALL COMMUNITY HOSPITAL—INTERNS, NURSES, AND EMPLOYEES¹

Principles Underlying Intern Service—How Interns May Be Secured—Their Work and Training—The Nursing Problem and How to Handle It—Other Hospital Workers

By JOHN ALLAN HORNSBY, M. D.

PAPER VIII

ONE of the most difficult administrative problems with which the superintendent of a small community hospital has to deal is that concerning the interns and nurses. So much depends on the adequate solving of this problem that it is entitled to more than passing consideration.

THE INTERNS

A great many trustees of small hospitals are under the impression that their respective hospitals are too small to justify the employment, at a salary, of an all-time young physician to act as resident medical officer of the institution. In large, well-conducted hospitals it is assumed from long experience and practice that one intern can take care of approximately 25 patients and do justice to them; in a small community hospital of, let us say, 50 beds, it may be possible to get along with the services of one resident physician or intern, because in such a hospital there are proportionately more private patients than in a large institution, and the attending physicians of these patients in a small hospital give more time and take a greater personal interest in them and do a good many things for them that are done by the interns in a large hospital.

But it seems inconceivable that any hospital could give adequate service to the sick without the continuous presence of a medical officer; it is not always possible to secure the attendance of a visiting physician in an emergency, and sometimes even a private patient might have to go for hours without medical attention which might be of the most urgent character. One of the reasons why patients go to a hospital is in order that they may have the advantage of the constant attendance, or at least the constant presence in the institution of a medical officer to meet complications that might come up. While it might be urged that usually one or another of the staff members is in the hospital during the greater part of the twenty-four

hours, this cannot be considered adequate service, because physicians of private patients do not want other physicians who are in business competition with them in the community to meddle with their patients.

So, taking either horn of the dilemma, it is very necessary that there be someone in the hospital all day and all night, someone who has had medical training and whose official position will permit him, or even compel him, to give service in an emergency to any visiting physician's patient—and, obviously, to receive patients, to give advance orders for them on their admission, to perform the technical duties of discharge, to write orders for the laboratory, x-ray, and diet work, and to keep up the records of patients. One resident intern cannot hope to do all this work adequately and in consonance with modern hospital and medical demands for more than 25 patients; for any greater number than that there ought to be two interns, and for any fraction over 50 patients there ought to be three, and so on.

Let us see now how we are to obtain these interns. This is a very serious problem with small hospitals.

The Council on Medical Education of the American Medical Association, which we must all accept as the authority on the training of the interns, since there is no other, has undertaken to classify the hospitals of this country in so far as the training of interns is concerned, in connection with medical school work throughout the country. The council has in each state a committee, usually composed of three members, whose duty it is to investigate the hospitals of the state to determine whether they are equipped and administered in such a way that interns can obtain adequate medical and surgical training. These committees are confronted with a huge task, and the work has not been well done up to this time, but the intention is there and some progress has been made, and the committees have gone far enough so that their findings, on investigation of the hospitals,

¹This is the eighth and last of a series of papers on the financing, planning, building, organization, and administration of "The Small Community Hospital."

have great weight with medical schools that are turning out these young physicians.

The practice now followed by a good many medical schools of giving a fifth or so-called "hospital year" is becoming more common all the time, and will undoubtedly be an invariable custom within a very few years. The work done some four or five years ago by Dr. Flexner under the auspices of the Council on Medical Education in the standardization of the medical schools of the country has served to eliminate nearly 50 percent of the schools that had been in existence up to that time, and has crippled many of the others, by showing up their inadequacy to give a proper medical education. Owing to these facts, and the further fact that the curricula for the remaining medical schools and their standards of admission have been so far advanced, not nearly so many young physicians are being turned out of the schools. In contrast with this, the hospitals have been growing so rapidly in numbers that at present there are not nearly enough young graduated physicians to go around, and the schools themselves and the young graduates can pick and choose the hospitals to which the latter want to go. Perhaps this phase of the case has had a greater influence in the elevation of standards in hospitals than any other one thing, because the schools and these state committees and the young medical men themselves are discriminating to an extreme degree in selecting hospitals for interns.

It has been urged, and there is some warrant for the contention, that a small hospital cannot give an intern the same good training that he can obtain in a large institution, for the two reasons (1) that the large hospital has available a more experienced medical staff for the teaching of interns, and (2) that the equipment and facilities in the large institution are greater than in the small hospital. But, on the other hand, these advantages can be in a great measure overcome by the more highly individualized attention that interns can get in the small hospital if the staff of that institution is composed of well-equipped practitioners who are capable of teaching, and if the administrative atmosphere is conducive to good service for the interns. Too often in small hospitals the intern is considered a necessary evil, and, under the influence of the principal of the training school, who is often also the superintendent of the institution, he is regarded as of far less consequence than the pupil nurses; often in some cases he is compelled to do orderly work for the nurses. Where this situation exists it is going to be difficult and, in the near future, impossible to obtain desirable intern service.

For these reasons hospital trustees ought to

consider this intern problem very seriously, and it seems to me that the way out of it is to designate the intern by a title of more dignity. Perhaps if, instead of "intern," he could be called the "resident medical officer," and if the trustees and the staff would support the dignity of this title and compel the hospital employees to recognize it, it would help a good deal. Young men serving in hospitals cannot hope to make money, but they have a right to hope for an opportunity to acquire experience and skill. Moreover, every young man has a certain amount of professional vanity and pride, and a title means much to him.

Now, how are small hospitals to obtain their interns? Of course, it is far better for a resident medical officer to know the institution, the medical men, and the hospital environment, and if he can serve for several years it will mean much to the institution. One very good way, after the creation of conditions in the hospital that will permit him to acquire actual experience in the practice of medicine, is to appoint the intern under a definite contract, giving him for the first year a salary of, let us say, \$25 per month, with an increase to \$50 for the second year, \$75 for the third year, and \$100 for the fourth year. Most young medical men are poor, and they know perfectly well that when they go into private practice there will be a period when expenses must go on and when the income is small. If the young man is wise he will want to stay in a good hospital for three or four years, especially if he can save enough money during that time to enable him to begin his private practice in a decent and dignified way and with a feeling that he has a reserve fund to tide him over the early years. It may be urged that the small hospital cannot pay these salaries, but if the choice of the intern has been wise and if good use is to be made of his services he will have become so useful to the visiting medical men in the institution that his presence alone will serve to attract enough additional business, by way of private patients, to far more than meet the increased salary obligation.

It can easily be conceived that a good intern in a small hospital could give anesthetics, do the greater part of the pathological work, and perhaps do the x-ray work as well. Of course these extra duties are contemplated only in the event that the hospital is small and that the intern's time cannot be utilized to its full extent with the actual care of the sick on the wards.

The best way to go about getting such an intern is to take up the question with one or more of the medical schools. The success that will be met in this direction will depend largely upon the showing that the hospital can make as a good place in

which to train the intern. A good many small hospitals do secure their interns in this way, but it goes without saying that only the best medical schools should be consulted and that the interns should be drawn only from the best schools.

When a good intern is secured it should be the duty of all the members of the staff and all the visiting physicians to help train him, and it should be the duty of the superintendent of the hospital, the head of the training school, and everybody else in the institution to make a serious and constant attempt to help him in his training.

THE TRAINING SCHOOL

It is a question open to argument in many directions whether or not a small hospital should have a training school, with the alternative of employing only graduate nurses to do the nursing work. Again, the question comes up of the greater facilities and the broader training that a nurse can have in a large hospital than in a small, and the question again has two sides, precisely as the same question has two sides regarding the intern. There are many small hospitals that are turning out very excellent graduate nurses from their training schools. Some small hospitals in this country have turned out some of the best graduate nurses that we have; some of them are turning out graduate nurses who are making splendid hospital administrators. To my way of thinking, far more depends on personality in the training of a pupil nurse than on the equipment or facilities of the institution. The large hospital has better equipment, larger facilities, and is supposed to have a more experienced medical staff under whose training the pupil nurse can acquire a greater fund of information concerning her future work. But there are many small hospitals in which the balance is more than reduced by the high character of the medical men and their professional skill, and by the qualities of a superintendent, especially where the staff and the superintendent give individual attention to the pupil nurses and help them individually in their training.

A few states in the Union have laws forbidding the operation of a training school in a hospital smaller than a certain size; 25 beds is the number set by one state. It seems to me that the number of beds in a hospital is a poorer guide in such a matter as nurse training than the work done in the institution.

I have in mind one hospital, which is extremely moderate in its equipment, and on which not much money is spent by the community, but whose staff, superintendent, and head of the training school give such a thorough course of training to their

pupil nurses that the graduates of this school are in constant demand even in competition with graduates of schools in the same neighborhood very many times larger and richer. While the activities of graduate nurses have vastly broadened in the last few years, extending into industrial work, visiting nursing and all the specialties, there still remains the fundamental field of private nursing to which most pupil nurses during their training aspire. It does happen that some of the larger, finer, and most extravagantly equipped hospitals confine the training of their pupil nurses to the nursing of patients under the conditions that prevail in that particular institution. Hence, when a graduate goes out into private practice she finds herself at sea in the average home, or if she goes into visiting nursing in the homes of the very poor she cannot accustom herself to the very plain and meager facilities of the home. Too often she throws up her hands in disgust at the absence of the things that she considers necessary for the care of her patient, instead of finding fault with her own training that she cannot make use of the things actually at hand. A nurse from a small, inadequately equipped hospital is much more likely to have been accustomed to making "something else do," and consequently will be at home wherever she finds herself in the presence of a sick bed.

Whatever the limitations of the hospital may be in regard to its equipment and facilities, there need be no such limitations in regard to the ability of the hospital people to carry out a proper curriculum for even their few nurses and to administer this curriculum under a rigid discipline.

If there is a proper loyalty on the part of the medical staff or the group of medical men practicing in the small hospital, there ought not to be any trouble about securing proper pupil nurse material for the training school. Medical men are always in close contact with the homes of the people, and education is too common nowadays for the young women residents of small communities to be deprived of proper educational facilities; indeed, there is hardly a community in this country—even a small community—that has not available excellent school facilities and a good proportion of well-educated young women. Too often the doctors themselves are to blame for the young women of the community going to large metropolitan hospitals for their training, and far too often the advice of the doctors that sends the young women away from home is based on their knowledge of the inadequacies in their home hospital.

So that it seems to me there is a very great responsibility resting upon the physicians who practice in the small hospitals in regard to the

nurses. The medical men ought to see to it that conditions in their home hospital are such that they can advise young women of their acquaintance or who belong to the families in which they practice to go to this hospital for their training. Far too often the inadequacies in the small hospital are due primarily to the medical men themselves; the moral tone in the hospital is set by the medical staff as a rule. If these men are ethical and their morals are good, if they are earnest and conscientious in their work and are exemplary in their habits, these virtues will be reflected in their hospital, and their hospital will be an attractive place for a young woman of culture, refinement, and education; she will want to go there and her parents will want her to go there. Low morals in a hospital are very rarely due to the character or qualities of the superintendent or the employees.

Another thing: if low standards of education and character are once admitted to the training school of even the smallest hospital, the training school in that hospital is doomed, while if the standards of character and the educational requirements are high and are strictly enforced, it will follow always that the training school will be a good one and that material for pupil nurses will not be wanting. It will not be profitable to go into the details of the conduct of the training school of the small hospital; that is going to be difficult always because of the lack of trained teachers, but very much can be done by the head of the school, even though she be a busy woman charged with the administration of the hospital as a whole, especially if she can engage the interest of the members of the medical staff, more particularly the younger men, and bring them up to a point where they will be willing to exert themselves, study the many good text-books on nurse training, and do their part of the teaching in a conscientious way.

For the other workers in the hospital very little need be said, because I addressed myself to a part of this subject in my last paper. Good hospital employees of the domestic class are hard to get; one superintendent of a small hospital, who had an excellent administration and a quite superior class of employees, told me not long since that she had had to employ an average of at least ten people for each place before she obtained one with whom she was satisfied. She told me that her method of keeping these people in the hospital was to pay them more than they could make elsewhere; she added, "I am getting along nicely and keeping my house cleaner, serving better meals, and giving an all-round better domestic service than the hospital formerly had, and I am doing it with one-half the people." This superintendent's

payroll was smaller than it was before, but the wages to the individuals were much higher. There is a hint here for hospital superintendents and trustees.

Only one more word: one trouble-maker among the common help in a hospital can do more to disorganize the help and to keep things in a ferment than the best superintendent can possibly counteract. The only way to do when such a person is discovered is to get him or her out of the service instantly. A strict enforcement of discipline and a strict adherence to established rules is absolutely necessary in order both to keep good help and to maintain team-work and loyalty in the institution.

Perfect Cure an Impossibility

"In the matter of race betterment, we place too much faith in the doctor and in medicine," says Dr. J. N. Hurty, commissioner of health of Indiana. "We think that medicines can undo the wrongs that have been done the body. Of course they can do no such thing. They cannot renew or remake broken organs. The physician does not know so much as the people think he knows; he is not so skillful as the people think he is, and they rely upon him too much; they have too much faith in him. They think, 'Oh, I can overstep this little bound of right living this time, and I can go to the doctor and he will give me a paper and with that paper I will get a tablet and I can swallow the tablet and undo the indulgence.' A vicious circle it is in reality, and yet it exists almost everywhere. . . . I think the very best possible thing is to eradicate from man's mind the thought that he ever can experience perfect cure after disease or after injury to his body."

Fighting Tuberculosis in Michigan

The Michigan legislature of 1915-1916 authorized a tuberculosis survey of the state. During the first twelve months of this work (reported by Arnold Mulder in the *Journal of the Outdoor Life*), 38 of the 83 counties in the state were visited, and 11,528 persons were examined in free public clinics. Of this number about one-fourth (2,914) were diagnosed as "positive" cases, about one-fifth (2,231) as "suspicious," a few (404) as "arrested," and about one-half (5,924) as "negative." The state board of health nurses visited the homes of more than 3,000 persons whose cases were diagnosed as "positive" or "suspicious." The press, the pulpit, and the public schools were used to reach a still larger number of persons. The institution of open-air schools in some places, the appointment of visiting nurses in others, the establishment of a full-time health department in two cities, agitation for the erection of county sanatoriums in several counties, and, above all, the mobilization of the medical profession for a concerted fight on tuberculosis, are among the results reported.

The Lewis and Clark Sanatorium was opened at W. 2404 Second avenue, Spokane, Wash., in February, by Drs. N. L. DeLong and Lucy Maurer. Dr. DeLong is a graduate of medical colleges in Philadelphia, Pa., and Nauheim, Germany. Dr. Maurer received her medical education at Ann Arbor, Mich. The new institution will accommodate 35 patients.

NOPEMING HOSPITAL FOR TUBERCULOSIS AT DULUTH, MINN.

A County Hospital to Which State, County, and Citizens Contributed—Some Costs of Architecture and Maintenance—Some Ideals on Which the Administration Is Based

By ARTHUR T. LAIRD, M. D., SUPERINTENDENT, AND W. L. SULLIVAN, ARCHITECT

THE tuberculosis question is everywhere recognized as one of the most important of our health problems. The institutional care of as many patients as possible is now urged both for the patients' benefit and for the protection of the community. Most of the moderately advanced and far advanced cases must be cared for in hospitals near their homes if they are to receive any insti-

ence in the sanatorium, to convince them that they will find there the best modern cure and treatment. The expense to the community of providing this will be far less than the cost of neglecting to do so.

Convalescents and arrested cases in a sanatorium are not to be considered as entirely helpless and hopeless invalids, but rather as crippled or



Fig. 1. Nopeming Hospital for Tuberculosis. Panoramic view of infirmary, administration building, and children's cottage. Patients' cottage in the background.

tutional care at all. If they are to be effective, such hospitals must not be allowed to degenerate into places of last resort for the vagrant and homeless, nor must they be considered as purely charitable institutions. The real foci of infection are in homes, and sanatoriums must appeal to wage-earners of the middle classes.

Children, who are more susceptible than adults, need protection most. Since compulsory segregation of any large proportion of the tuberculous citizens of a community is at present impracticable, it is necessary, in order to secure their pres-

handicapped citizens for whom special forms of occupation must be devised, as is now being done for discharged soldiers in Europe. In this way more complete recovery may be secured and economic waste lessened.

Some help in the planning of county tuberculosis institutions for advanced cases may be had from the study of semi-philanthropic private sanatoriums for advanced cases, but in the main the problem of the institutional care of advanced cases is a new problem.

These are the considerations which have influ-



Fig. 2. Nopeming Hospital for Tuberculosis. Ambulant patients' cottages.



Fig. 3. Nopeming Hospital for Tuberculosis. Sleeping porch of administration building. Note rubber-tired casters on beds.

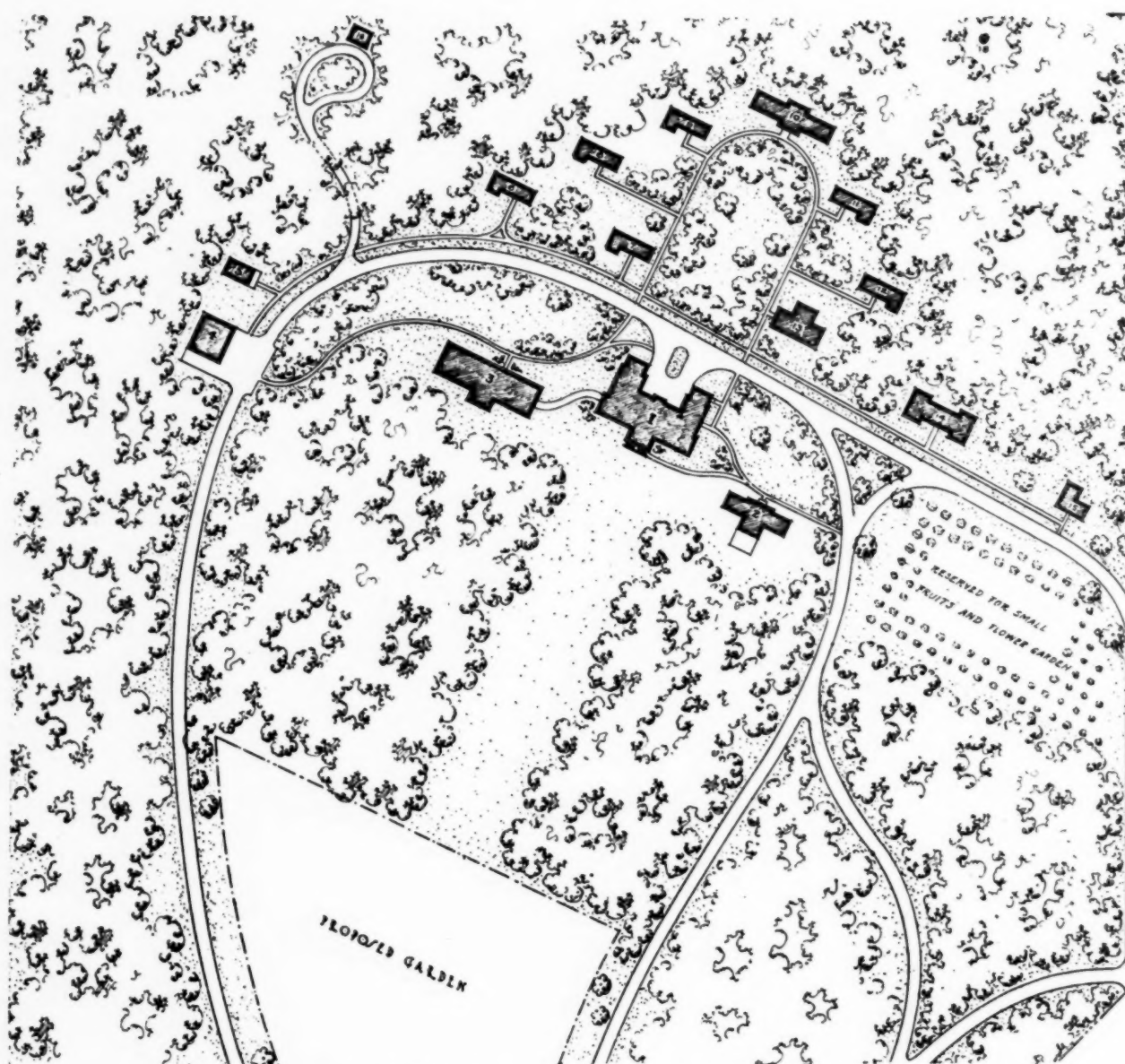


Fig. 4. Nopeming Hospital for Tuberculosis. General ground plan.

1. Administration building.
2. Children's cottage.
3. Infirmary.

4. Power house.
5. Engineer's cottage.
- 6-12. Patients' cottages.

13. Service building.
14. Nurses' cottage.
15. Superintendent's cottage.

16. Morgue.
17. Barn (not shown).
18. Water tank.

enced the St. Louis County Sanatorium Commission in its plans for Nopeming. As in many other enterprises for the public benefit, the citizens of this progressive county have given the undertaking characteristic and enthusiastic support. Since 1913 the help of the State Advisory Commission and substantial subsidies from the state have been available.

As soon as the commission was appointed by the County Board in 1909, its members began a thorough study of sanatoriums in other communities, visiting the principal ones in the eastern and central states, dividing the field between them. They chose for their secretary and first superintendent Dr. Wm. H. Hart, of the staff of Adirondack Cottage Sanatorium, Saranac Lake, N. Y., founded by Dr. E. L. Trudeau. Dr. Hart is now

with the allies in France, being one of the first Canadians to volunteer. His good planning is responsible for some of the best features of the institution. On his arrival in Duluth he began a careful study of various possible sites, and finally one that is ideal in many ways was selected. Situated high on the north slope of the St. Louis Valley, 1,300 feet above the sea, well protected on the north by a rocky woodland, it affords a wide and alluring prospect over northern Minnesota and Wisconsin. Groves of evergreen and hardwood, containing some of the best trees still left in this region, make the Chippewa Indian name, "Nopeming"—"Out in the Woods"—especially appropriate. The site is near Duluth, but is readily accessible from the cities on the Iron Range by way of the Canadian Northern Railway.

In order that the first building might embody the best features of sanatoriums already established, a firm of architects, Scopes & Feustmann, that had special experience in this line of work, was employed. It was decided, as the sanatorium

floor two sleeping porches for employees. The arrangement of offices, sitting rooms, dining rooms, and kitchen is shown on the plan. The kitchen is on the first floor, and has plenty of light and cross-ventilation. In the basement are various store rooms and a small laundry.

The urgent need of a hospital for tuberculous children was brought home about this time to some of the citizens of Duluth by the occurrence of several specially sad and distressing cases. Rather than wait for the public sentiment of the entire county to become aroused to the importance of the enterprise, the women of Duluth at once set about raising a fund of \$10,000 and presented it to the county for the building of a children's cottage. This was completed and ready for occupancy in May of 1912, the time of opening the main sanatorium for patients. It accommodates twenty-five children, and contains four wards

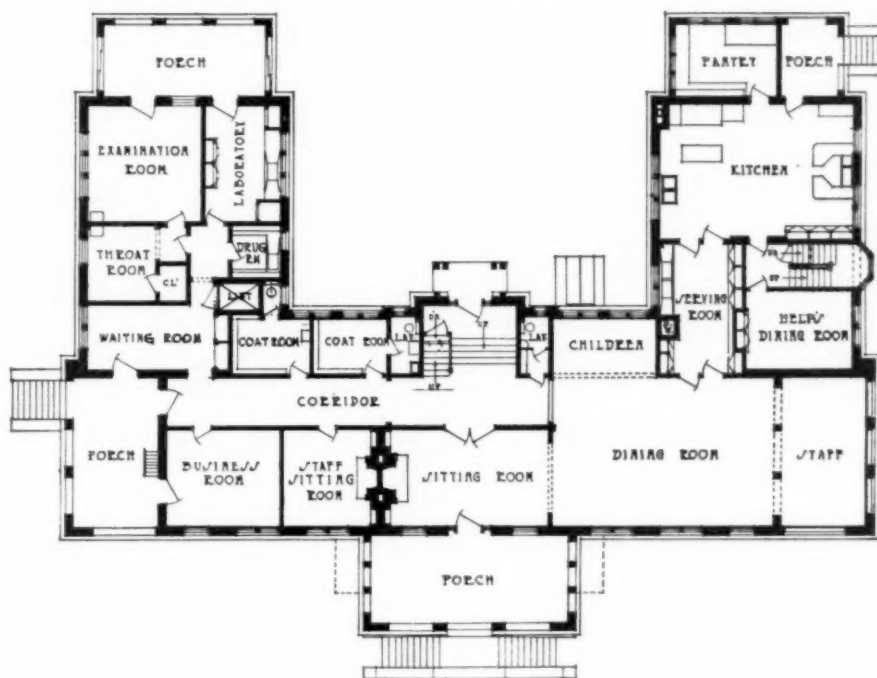


Fig. 5. Nopeming Hospital for Tuberculosis. Administration building. First floor plan.

was to be primarily for advanced cases, to provide, first of all, a well-constructed hospital building, furnished with modern conveniences and equipped with open-air sleeping porches. It was felt that it would not be wise to begin the work with lean-tos or shacks. Accordingly the present administration building was planned, and in it were included rooms and porches for bed patients. The construction is of wood, tile, and stucco.

The patients' rooms receive direct sunlight, and in nearly every instance open directly on a sleeping porch. There are no thresholds. The floor of the porch and room are on the same level, so that the patient may readily be rolled in and out. It will be noted from the plans that there are porches in large number and variety. On the second or patients' floor are five moderate-sized porches and two individual loggias; on the first floor, three large ones, that may be used as "liege halle" for ambulant patients, and on the third

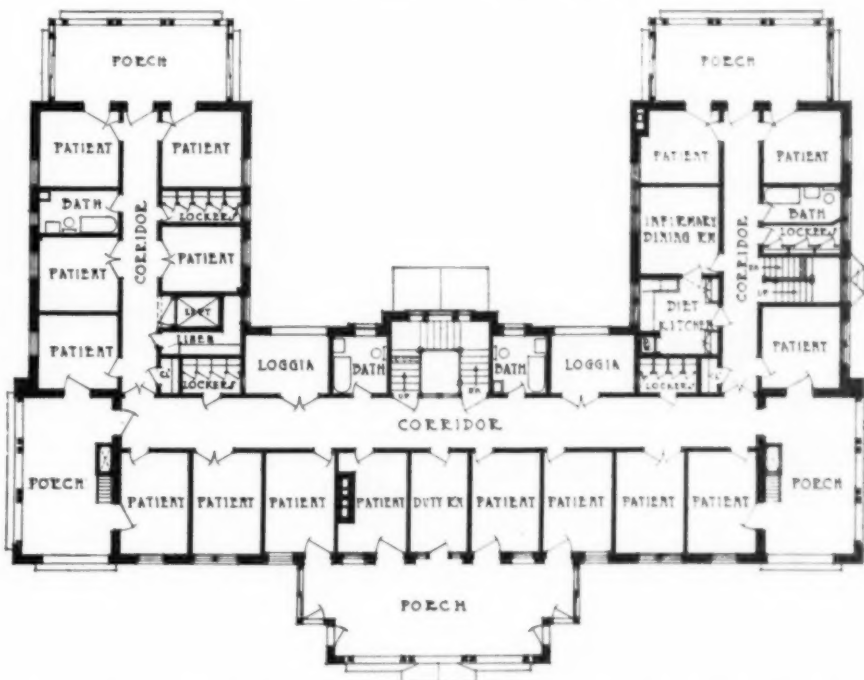


Fig. 6. Nopeming Hospital for Tuberculosis. Administration building. Second floor plan.

with porches connected, an open-air school room, service rooms, and a third floor for isolation. It is of wood and stucco construction.

After the sanatorium had been in operation a year, and, with the aid of a small tent camp, was caring for between 60 and 70 patients, it was seen

that there was an urgent demand for more room for bed patients. This need the infirmary, the next building erected, was designed to meet. This infirmary is of strictly fireproof construction, being of concrete and hollow tile. It contains twenty large rooms for patients, each of which may be used by two persons as a dressing room or bed room. These rooms are nearly all directly connected with porches. It was intended that they should ordinarily be used by two patients, but that, if anyone was very ill, he should have a room to himself. The patients' rooms are all on the south side of the building, while the service rooms, diet kitchen, and bath rooms are on the north.

One of the pleasantest features of the infirmary is the arcade, which connects it with the main building, and the open deck or promenade on its roof. The covered corridor which forms the arcade is 13 feet wide, and has been found to be a most comfortable sleeping and lounging place for ambulant patients, who dress either in the infirmary or in the main building. Service tunnels connect the infirmary with the main building and with the boiler house.

Four cottages have been built during the past summer for afebrile patients who are able to walk some distance to their meals. These are similar to the cottages at the Edward Sanatorium, Naper-ville, Ill., and consist of a sitting room, dressing

room, and a large sleeping room. While suitable for a comparatively small proportion of the patients in a county sanatorium, a few such buildings can be used to advantage. It has been found that the expense of connecting these cottages

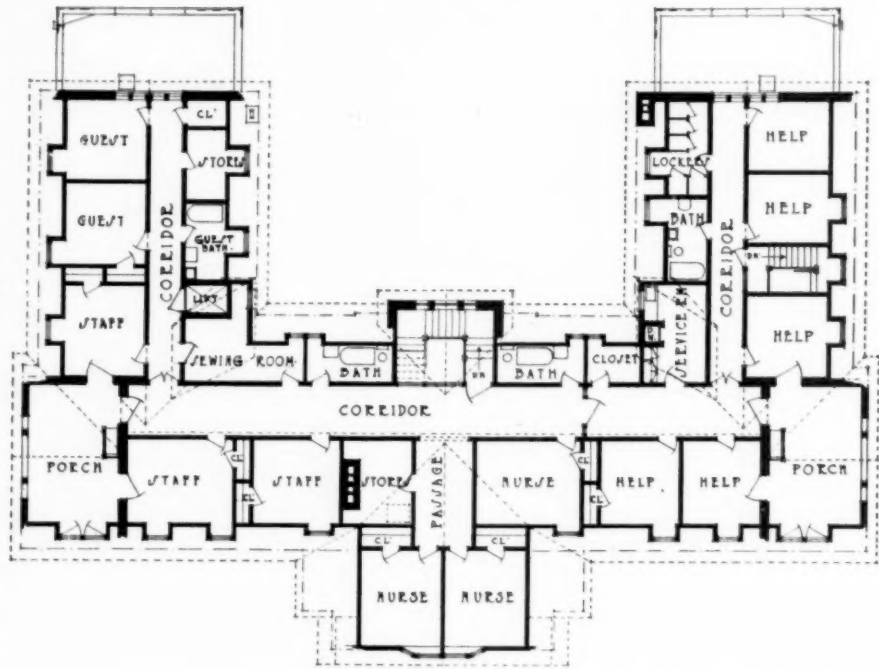


Fig. 7. Nopeming Hospital for Tuberculosis. Administration building. Third floor plan.

with the central heating plant and with the water and sewer mains has been nearly as great as the cost of the cottages themselves. Nursing of patients temporarily confined to bed in such cottages pending transfer to the infirmary is also inconvenient. Instead of building more cottages at the present time, the commission plans to connect the infirmary and boiler house with an arcade containing heated rooms and open porches for about 40 patients able to come to their meals, but not

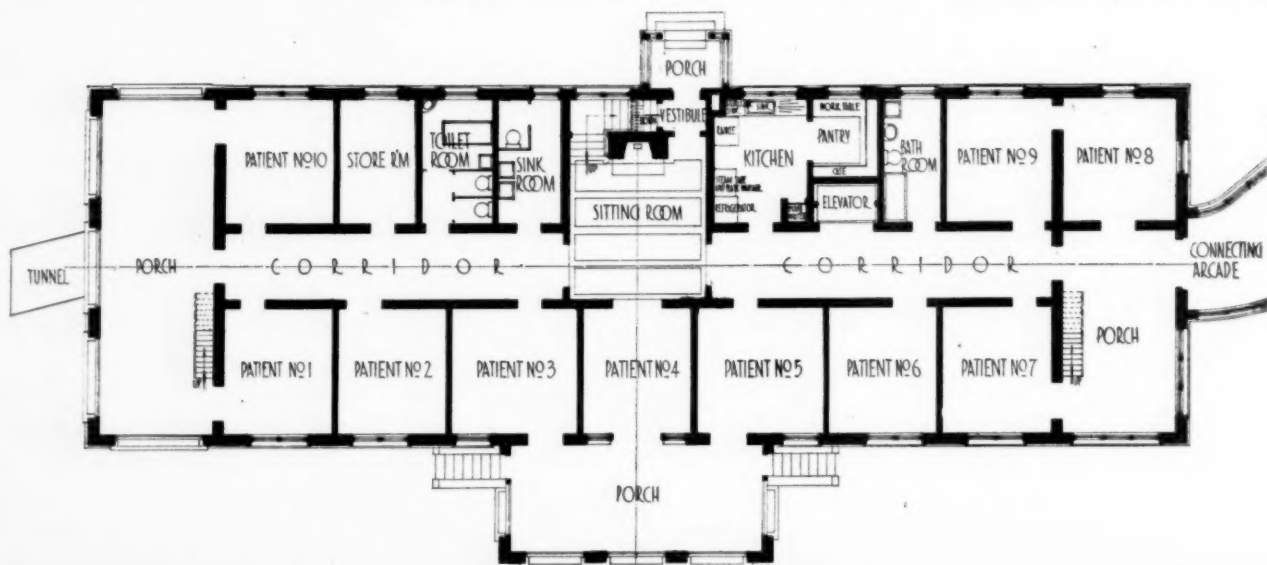


Fig. 8. Nopeming Hospital for Tuberculosis. Infirmary building. First floor plan.



Fig. 9. Nopeming Hospital for Tuberculosis. Infirmary building. Second floor plan.

vigorous enough for a walk to the cottages in all kinds of weather. An inclosed corridor in the rear of the arcade will simplify matters of administration and service.

The tent camp located immediately in the front of the main building has been found to be a satisfactory means of providing sleeping quarters for a certain number of ambulant patients. It has been in operation for the past year, and is in use during the winter as well as in the summer; it is practicable, however, only on account of its close

are refused admission, even if in extremis, while the presence in the institution of a considerable number who are getting well is a matter of encouragement to all.

Single rooms are provided for those who are very seriously ill. For those who are up and about, music and entertainments, reading, and instruction in handicrafts are provided. A family spirit is cultivated and an effort is made to make all feel at home. The highest rate charged is \$7 a week. No distinction is made between free and



Fig. 10. Nopeming Hospital for Tuberculosis. Children's pavilion. First floor plan.

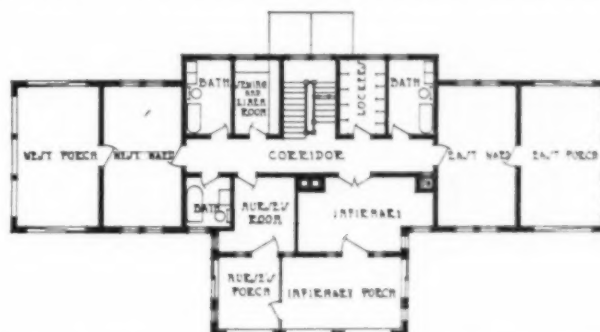


Fig. 11. Nopeming Hospital for Tuberculosis. Children's pavilion. Second floor plan.

proximity to the dressing rooms and locker rooms in the adjacent building. The tent patients are in fact practically house patients, sleeping in extensions of the porches. In every hospital for advanced cases there will be a number of patients who can be taken care of to advantage in tent camp shacks or cottages suitably located, but for the majority hospital rooms or wards in permanent buildings must be provided.

The care of very advanced cases and of those who are improving in health in the same institution has been found to be entirely feasible. Every effort is taken to minimize the depressing effects of the deaths which inevitably occur, since none

pay patients. Up to the present time there has been no difficulty in keeping the institution full, and there is always a waiting list of considerable length.

The central heating plant is located 260 feet west of the infirmary, and is connected with the administration building by a concrete tunnel 6 feet wide and 8 feet high. All steam and water mains are in this tunnel. The heating plant was designed to furnish heat to all the buildings contemplated for the institution, and the boiler house has been planned so that additional stories may be added to it for laundry and electric light plant and sleeping quarters for male employees.

The water supply is derived from two drilled wells; each over 200 feet deep. There are storage tanks on the hill back of the sanatorium, with a capacity of 60,000 gallons.

A patients' work shop and printing office provide occupations for patients allowed sufficient exercise. Here the minor repairs, and painting and printing for the institutions are done; arts and crafts are also taught. Many of the patients are now on the payroll of the institutions in various capacities as janitors, tray boys, clerks, etc. All who work more than four hours a day are allowed some remuneration. The work is under careful medical supervision, and is promptly discontinued if it seems to be doing harm.

A separate building, airy and sanitary in every way, to be used as a workshop or factory where

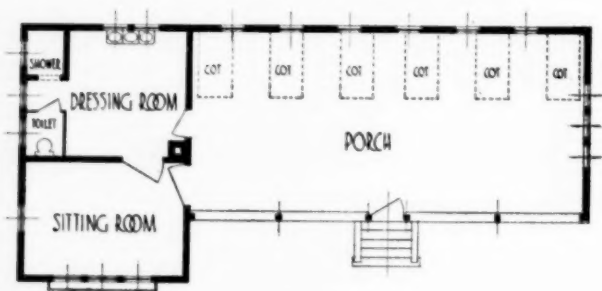


Fig. 12. Cottage shack for six patients.

ex-patients can be employed, is a future possibility.

A free clinic twice a week in Duluth, in cooperation with the city health department, provides opportunities for early diagnosis, and simplifies the matter of keeping in touch with discharged patients. It constitutes the social service department of the sanatorium.

The investment of the county and state in a plant of this sort is necessarily considerable, but is small when the financial loss caused by the disease is remembered.

The cost of buildings already in use has been as follows:

Administration building	\$ 48,096.45
Children's cottage	12,060.32
Infirmery	37,953.75
Boiler house and heating equipment.....	24,354.87
Four patients' cottages	10,600.00

\$133,065.39

This does not include the cost of site, water supply, or sewage plant. The maintenance cost in 1915, excluding permanent equipment purchased, was \$1.67 a day per patient. This amount was reduced by state and receipts to 99 cents a day per patient, the net cost to St. Louis county. The items on which this estimate is based will be gladly furnished on request.

The present capacity of the institution is 120

patients, and in another year about 200 will be accommodated.

The features of the institution to which special attention is called as desirable in a county sanatorium are: the centralization of the care of bed patients in buildings closely connected with the administration center; the provision of fresh air treatment for all cases, even the far advanced; the construction of buildings so that fresh air treatment can be carried out easily; the utilization of cottages and a tent camp for certain ambulant cases; special provision for the care of tuberculosis children from the opening of the institution; the provision of suitable occupation for convalescent patients.

ROUTINE MENTAL TESTS FOR DEFECTIVES

Necessity of Determining the Extent of the Psychopath Problem—Physical and Mental Examination of Candidates for Relief

A comprehensive program is outlined by Helen M. Wright in the *Boston Medical and Surgical Journal*. After making an exhaustive survey of the situation, she makes the following recommendations:

1. A way should be provided by which all social workers in training should be given instruction in the social and general signs of mental diseases. This instruction should include experience in work with psychopathic patients.
2. Social organizations of every type should keep an index, either by signal or card catalogue, of the insane, epileptic, feeble-minded and distinctly asocial persons enrolled.
3. There should be developed a central bureau of registration for persons included in the above four types.
4. All agencies dealing with unmarried mothers, delinquents and dependent children should establish as an essential routine a careful physical and mental examination of every individual under their care.
5. Agencies dealing with dependents who are not delinquents should establish as part of their necessary routine a system by which families or individuals dependent for more than two years, or families for whom an agency is planning to give considerable aid and supervision, shall be given a thorough physical and mental examination as early in the treatment as possible.
6. All children in the care of social agencies, whether normal or borderline, should be given mental examination upon admission and discharge, and if supervised for several years should be examined at intervals of from three to five years.
7. The existing psychiatric clinics and psychopathic hospitals should be enlarged and equipped to meet the increasing demands made upon them.
8. When these centers can no longer care for the patients, other psychological clinics and psychopathic hospitals should be supplied.
9. Should social agencies prefer to employ their own psychologists or alienists, these specialists should work together in such a way that their work would be standardized and the data be as nearly uniform as possible.
10. All psychological or mental examinations should include the Wassermann test for syphilis, as well as a physical examination and social history.

OLEOMARGARINE—A USEFUL AND ECONOMICAL SUBSTITUTE FOR BUTTER

Its Composition, the Process of Its Manufacture and Its Position in the Food World

By JOHN PHILLIPS STREET, CHEMIST CONNECTICUT AGRICULTURAL EXPERIMENT STATION, NEW HAVEN, CONN.

JUST before and after the Franco-Prussian War in 1870, the citizens of France, especially the poorer classes, suffered greatly from deprivation of food. Butter, an essential part of their diet, was unprocurable either because of its scarcity or its prohibitive price. Accordingly a French chemist, Megé-Mouries, devoted his attention to the working out of a method for making an artificial butter from beef fat, and in 1870 a patent was granted to him. Since that time oleo-margarine, or margarine as it is called in Europe, has been an important factor in the world of food.

Megé-Mouries recognized the importance of a wholesome, nutritious and digestible fat in the human diet. He also realized that good butter because of its price was not always available to the poor, and that, therefore, a suitable substitute procurable at a low price would be a boon to the race. Today the people of the world are again confronted with an abnormally high price for butter, and the attention of all thoughtful housewives and dietitians should be directed towards a proper substitute, if such is to be had.

Certain questions naturally suggest themselves in this connection.

Is oleomargarine a clean, healthful, nutritious, digestible food?

How does it compare with butter as regards nutritive value and digestibility?

Why is oleomargarine a sort of pariah among food products?

Who is responsible for this condition?

An attempt to answer these questions will be made in the present paper.

MATERIALS USED IN THE MANUFACTURE OF OLEO-MARGARINE

The best test of the cleanliness and purity of a food is found in a study of the raw materials used and the process by which it is made. While numerous patents have been granted since that of Megé-Mouries, the essential features of the process have shown but little change since 1870. Oleomargarine may be described as a mixture of animal fats and vegetable oils, sometimes colored by the addition of annatto, methyl orange or other coloring matter, sometimes made to resemble butter in color by a skilful mixture of oleo oils of varying shades. The animal fats generally used are oleo oil and neutral lard (the latter almost ex-

clusively by American manufacturers), while among the vegetable oils cotton seed, sesame, peanut, cocoanut, sunflower and corn oils are most widely used. Milk or cream, and butter are also used in varying proportions, and a "starter", such as is commonly used in creameries, is also frequently employed.

The following recipes, taken from Lewkowitsch, illustrate typical oleo mixtures:

A general recipe is 65 parts of oleo oil, 20 parts of vegetable oils and 30 parts of milk; this will yield 100 parts of oleomargarine, 15 parts of water being eliminated during the manufacturing process.

FORMULAS OF THREE GRADES OF AMERICAN OLEO-MARGARINE

<i>High Grade</i>		<i>Medium High Grade</i>	
Oleo oil.....	100	Oleo oil.....	315
Neutral lard.....	130	Neutral lard.....	500
Butter	95	Cream	280
Salt	32	Milk	280
Color	0.5	Salt	120
yielding about 352 parts		Color	1.5
		yielding from 1350 to 1380 parts.	
<i>Cheap Grade</i>			
Oleo oil	495	Milk	255
Neutral lard	265	Salt	120
Cotton seed oil.....	315	Color	1.25
yielding from 1265 to 1300 parts.			

For still lower grades corn oil is used in the United States. In Europe lard is little used; in England oleo is prepared exclusively from beef fat; on the continent mutton fat is used; and in Russia sunflower oil, or mixtures of this oil with cocoanut oil.

The object of the oleomargarine manufacturer being to render his product as closely similar to butter as possible, and to take away the tallowy or too strongly fatty taste of the material, butter is often added. Other manufacturers add small quantities of volatile acids, volatile aldehyds, mixed glycerids containing butyric acid, or "butter perfumes" which consist chiefly of volatile acids.

In some countries the mixing of oleo oil with butter is forbidden, but in the United States this is allowed provided the product is sold as oleomargarine. In Germany, Austria and Sweden the manufacturers are required to add at least 10 parts of sesame oil per 100 in order to facilitate the detection of oleo in butter. In Belgium 5 parts of sesame oil and 1 part of potato starch are required.

THE PROCESS OF MANUFACTURE

In brief, the process of manufacture is as follows:

The rough fat is removed from the slaughtered animals as quickly as possible, and sorted, the kidney fat being the most highly prized. This fat is then thoroughly cleansed with warm water and taken immediately to large, well-aired, artificially cooled rooms to harden, a result secured either by suspension in the cool rooms for several hours or by immersion in iced water. The hardened fat is then crushed, ground and thoroughly disintegrated, and at once introduced into melting kettles, kept at a temperature not exceeding 45° C. (at present in America a temperature of about 65° C. is used).

At this temperature only a portion of the fat separates from the tissues. The settling and clearing is assisted by sprinkling salt over the surface, and the melted fat, called "premier jus," is drawn off into shallow trays and cooled, the bulk of the stearin separating out in a crystalline form. This is then cut up into square pieces weighing about 3 pounds, wrapped in canvas and placed in hydraulic presses. For the highest grades the "premier jus" is remelted and allowed to settle out once more, so that the last traces of membrane and tissue are thrown down. The oleo oil which runs from the presses forms the chief raw material for the manufacture of oleomargarine.

This oleo oil is then mixed in churns with the vegetable oils and fats, and milk or cream, and a suitable "starter." Cottonseed oil and cottonseed stearin are the vegetable oils most commonly used, the quality used varying with the intended quality of the finished oleo. In any case, however, the cottonseed oil must be practically free from free fatty acids, and must be as free as possible from the peculiar flavor of that oil. Peanut oil, sesame oil and sometimes olive oil are used in Europe. The milk and cream used must be pasteurized, and if butter is used this also must be made from pasteurized products.

The purpose of the churning, besides the thorough mixing of the ingredients, is to destroy the tendency of the oleo to crystallize. The cooled oleo is run from the churn into cooling tanks, being met meanwhile by a current of icy water delivered under high pressure, which thoroughly pulverizes the oleo, so that after solidifying, the granules somewhat resemble those of butter. The solidified oleo is ladled out of the cooling tanks with long wooden spoons, is placed in wooden wagons to permit the draining off of the admixed water, and is then put into the kneading ma-

chines. In these machines the oleomargarine is thoroughly worked and the excessive water squeezed out, a homogeneous mass resulting. This is then salted to taste, mixed with a little coloring matter (if artificial color is used) and again thoroughly kneaded. It is finally molded into pats, rolls, or any desired form.

So much for the ingredients of oleomargarine and the process of manufacture. The animals supplying the fat are inspected by the government, the vegetable oils must be of high grade, the milk and cream must be pasteurized, and the butter used itself must be made from pasteurized material. It would seem that every safeguard had been thrown about the product to keep it sweet, clean and wholesome. In this respect it compares more than favorably with much of the butter on the American market, which is not inspected by the government, and which in many cases, as is well known, is not made from the best raw material and not always in a sanitary manner. Likewise the process of manufacture leaves little to be desired from the standpoint of cleanliness. In fact, perfect cleanliness is an absolute essential in the manufacture of a high-grade oleo.

THE NUTRITIVE VALUE AND DIGESTIBILITY OF OLEOMARGARINE

The average composition of a high-grade butter and a high-grade oleo is as follows:

	Butter	Oleo
Water	11.0	8.6
Protein	1.0	0.9
Fat	85.0	88.8
Ash, (chiefly salt)	3.0	1.7

Inasmuch as both butter and oleomargarine are essentially fatty foods, the ingredients other than fats are in a sense impurities. From the chemical point of view, therefore, oleo compares more than favorably with butter. It contains as a rule considerably less water than butter; in fact the average of 11 percent attributed above to butter is more than fair, as the present tendency of the butter-maker is to crowd the permitted limit of 16 percent water as closely as possible, with the result that today much of our butter contains nearer 15 than 11 percent of moisture. From the nature of things oleo cannot carry as much moisture as butter can, and oleo is therefore a somewhat more concentrated food.

The mere composition of a food, however, is of little importance unless the food in question is capable of digestion in the human body. While the number of experiments on the digestibility of oleomargarine are rather limited, careful tests made by Mayer, Rubner and Atwater have shown that from the digestibility standpoint about 102

parts of oleo are equivalent to 100 parts of butter, so that for all intents and purposes the two products may be considered as of essentially equal digestibility.

THE PRESENT STATUS OF OLEOMARGARINE

We have seen that oleomargarine is, and can be, made only from high-grade, wholesome raw material, that it is manufactured in a clean and sanitary manner, that it contains fully as much nutriment as butter and is almost as digestible; and yet in many quarters oleo is considered an interloper in the food world, and onerous restrictions are in existence affecting its manufacture and sale. What is the reason for this anomalous state of affairs?

Unfortunately the oleo manufacturers themselves are chiefly to blame for this condition. As the original purpose of its manufacture was to secure a cheap substitute for butter, and as every effort was made to simulate butter as closely as possible in texture, flavor, and color, the temptation to market the product as butter and at a butter price apparently was too strong for the manufacturers to resist. Accordingly oleomargarine, like certain other American products, began its career dishonestly in many quarters, and the stigma thus brought upon it still remains. Had the manufacturers only possessed sufficient vision to recognize its value as a food and sold it on its own merits, its history and status in the food world today would have been vastly different.

The abuses in connection with the sale of oleomargarine as butter and the adulteration of the latter with oleo led to restrictive legislation on the part of the nation and the states. The fact that it was a serious competitor with butter also doubtless was an important factor in such legislation. Inasmuch as a colored oleo was scarcely distinguishable from genuine butter by the ordinary observer, the government imposed, and still imposes, a special tax on the colored product. While the tax on uncolored oleo is but one-fourth of a cent per pound, on the colored article a tax of 10 cents per pound is levied, thus destroying one of oleo's chief advantages, its cheapness. What is a colored oleo? This is an interesting legal question that has frequently been before the courts. An oleo to which annatto or some other coloring matter has been added obviously is a colored product, but when the butter-like color has been secured by a skilful mixing of oleo oils of varying shades the problem becomes more intricate. In this connection we have the anomalous situation of the food authorities forbidding the use of any color in oleo except under almost

prohibitive conditions, while at the same time permitting without declaration the use of similar color in a dairy product, butter. June butter, rightly or not, is the most highly prized butter because of its flavor and color. It therefore commands a higher price, but strange to say, the food authorities permit, almost directly encourage, the dairyman and creamery man to add color to his butter and thus sell "June" butter twelve months of the year. Granting that the initial purpose of such legislation was to combat the blatant frauds connected with the sale of oleomargarine, two wrongs do not make a right, and our present laws concerning oleo are discriminative legislation of the worst kind. The consumer for various reasons is prejudiced against the uncolored oleo, and by far the greater part of this uncolored and cheaper product is not sold directly to the ultimate consumer. As a result the colored product is the more popular in the retail trade, and instead of oleo being in reality the "poor man's butter" this same poor man must pay 10 cents extra per pound, simply that creamery butter, whatever its quality, may be protected.

Such a tax is unfair, the manufacturers recognize it as such, and the law is frequently evaded. The Commissioner of Internal Revenue reported that in 1915 four important cases were settled, in which colored oleo had borne the stamps of the uncolored product, the fraud on the government amounting to \$17,692,410.47. It would appear, therefore, that the present statutes are a direct incentive to fraud. This of course in no way justifies the manufacturer in breaking the law, but apparently in spite of the law's restrictions its real purpose is but imperfectly effected, and the actual result of its enforcement is the discouragement of a perfectly legitimate industry, simply that the producers of butter, with their vast influence in our legislative halls, may continue to put before the public a product, good, bad or indifferent, manufactured in any way they please from any sort of material, and call it butter.

THE REMEDY

The remedy for this unfortunate state of affairs naturally rests with the manufacturer and the consumer. The manufacturer should realize that he has a high-grade food product, which is nutritious and digestible, and which he can afford to sell for a comparatively low price. He should push oleo as oleo, not as butter; he should discourage his salesmen from advising the retailer how to circumvent the law; and he should insist that these retailers sell oleo for what it is and not bring further discredit on its name.

The consumer, on the other hand, should abandon his foolish prejudice against uncolored oleo; he should remember that the color of neither oleo or butter, under present laws, is any index whatever of its quality; he should appreciate that oleo is as nutritious as butter and almost as digestible; he should realize that the raw materials and the process of manufacture used are vastly superior from a sanitary standpoint to those used with much of the product sold as creamery butter; he should encourage the use of the uncolored oleo (which he himself may color should he so desire) and thus pave the way to the repeal of the unjust 10-cent tax on the colored product; he should realize that there are grades of oleo just as there are grades of butter, that the oleos of highest grade are scarcely distinguishable in flavor and texture from high-grade butter; and that a good oleo is in every way preferable to a poor butter.

HOSPITAL FEES IN INDUSTRIAL ACCIDENT CASES

Rates Not Standardized in Most Localities—Schedules in a Few Places Which Have Adopted Standards

The rates paid by industrial corporations for hospital care of their employees, when injured in industrial accidents, vary greatly. In most localities, indeed, no attempt has been made to establish standards for these fees. In some places, however, the rates have been fixed either legally (as under the law for employees' compensation) or by voluntary agreement among the hospitals concerned. In Massachusetts the following fee schedule has been arranged by the State Industrial Accident Board:

Board per week (first two weeks) ¹	\$15.00
Surgical dressing fee.....	5.00
X-ray examinations	5.00
X-ray examinations on hip, trunk, or head.....	10.00
Serums, drugs, or special appliances.....	at cost
Special nurses (day or night).....	4.00
Ambulance calls within 3 miles.....	3.00
Ambulance calls, each additional mile.....	1.00
Emergency ward fee (overnight).....	3.00
Emergency ward fee.....	1.00
Emergency ward dressing fee (if operation).....	5.00
Out-patient emergency ward x-rays.....	5.00
Out-patient fee (each visit) first two weeks.....	1.00

The following rates have been adopted by the hospitals of Detroit as minimum fees for board and care in industrial accident cases under the Michigan state compensation law:

Bed, board, and general nursing (minimum charge \$5), per day..	\$ 2.00
Operating room fee for each operation, large cast, etc.....	5.00
X-ray examinations (including a second confirmatory examination)	10.00
Secondary surgical dressings.....	\$1.00 to 2.00
Ambulance service, first mile, \$2.00; each additional mile.....	1.00
Special graduate nursing, including board of nurse, per day.....	4.75
Laboratory examinations (seldom needed in accident or surgical cases)	\$2.00 to 10.00
Special drugs, serums, vaccines, mineral waters, and liquors.....	at cost

The foregoing items, except those for bed, board, and nursing care, are based on the fees current in Detroit at present.

The following rules were adopted by the Industrial

¹After two weeks, except in unusual cases, further board must be paid by patients and not by insurance companies.

Commission of Ohio under the workmen's compensation act:

1. Our rate for hospital service per day is \$2.15 for private rooms, or a rate of \$15 per week. If the injured party is confined to a ward, the usual ward rate of \$1 to \$1.50 per day, or \$7 to \$10.50 per week, is allowed.

2. The service of interns or externs is understood as belonging to the hospital. No fees are allowed for their service.

3. A fee is allowed to the hospital for dressings in cases not confined to the hospital, but which come into the hospital for medical aid. A first-aid fee in such cases will be allowed any physician rendering service, not employed by the hospital in the capacity of intern or extern, provided attending physician's report is filed with the commission.

4. Unnecessary or prolonged hospital fees for room, board, nurse, and general attendance will not be granted.

5. A fee of \$5 is allowed for the use of the operating room in major operations, a fee of \$3 in minor operations for the use of the emergency room. A fee of \$5 will be allowed for anesthesia when administered by a regular physician not connected with the hospital in the capacity of intern or extern or employed by the hospital direct. Otherwise the fee for anesthesia is covered by the operation room fee.

6. The services of a special nurse, when shown to be absolutely necessary and ordered by the attending physician, shall be allowed. When such service is rendered by a graduate or trained nurse, a maximum charge per day, not to exceed \$4 a day, meaning 12 hours' service, will be allowed.

Philadelphia hospitals have adopted the following fee schedule for the treatment and care of industrial accident cases under the Pennsylvania compensation act:

HOUSE CASES

Bed, board, and general nursing (minimum charge, \$5), per day..	\$ 2.00
Operating room fee.....	5.00
Ambulance service	no charge
Laboratory examinations (not often needed).....	\$2.00 to 5.00
Special drugs, serums, vaccines.....	at cost

RECEIVING WARD AND DISPENSARY CASES

First dressing	\$ 1.00
Subsequent dressings	1.00
Anesthetics	3.00

OTHER FEES

Minor operations	\$ 2.00 to \$ 5.00
Major operations	25.00 to 50.00
X-ray examinations	3.00 to 10.00
Reducings and dressings—fractures.....	5.00 to 15.00
Reducings and dressings—dislocations.....	3.00 to 10.00
Written report at any time as to condition of patient.....	no charge
Special examination and full report.....	3.00 to 5.00

Strictly Germ Proof

The Antiseptic Baby and the Prophylactic Pup
Were playing in the garden when the Bunny gambolled up;
They looked upon the Creature with a loathing undis-
guised;
It wasn't Disinfected, and it wasn't Sterilized.
They said it was a Microbe, and a Hotbed of Disease;
They steamed it in a vapor of a thousand-odd degrees;
They froze it in a freezer that was cold as Banished Hope,
And washed it in permanganate with carbolated soap.
In sulphureted hydrogen they steeped its wiggly ears,
They trimmed its frisky whiskers with a pair of hard-
boiled shears;
They donned their rubber mittens and they took it by the
hand,
And 'lected it a member of the Fumigated Band.
There's not a Micrococcus in the garden where they play;
They bathe in pure iodoform a dozen times a day;
And each imbibes his rations from a Hygienic Cup—
The Bunny and the Baby and the Prophylactic Pup.

—Arthur Guiterman, in the "Laughing Muse."

NEW TYPE OF LIMOUSINE AMBULANCE

Radical Departure from Standard Style, in Door Opening at Side. Designed by Thomas McGann, Chauffeur, for the Massachusetts Homeopathic Hospital

This ambulance has proved extremely satisfactory under working conditions, and, though not equipped with shock absorbers, rides very easily, due to the position of stretcher-carriage, which is carried practically midway between front and rear springs. The ambulance is not required to back up to curb, and, owing to withdrawal of stretcher-carriage, can be loaded and unloaded with great facility.

The rear compartment is carried forward to the right of the driver's seat, and protected from draft when the wind-

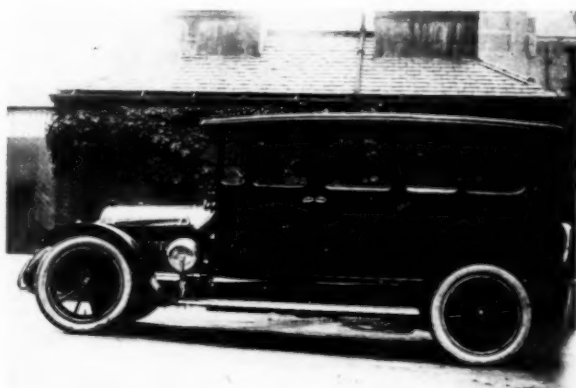


Fig. 1. McGann hospital ambulance. Designed for the Massachusetts Homeopathic Hospital.

shield is opened by a longitudinal partition separating it from the driver's seat and a cross partition about 12 inches back of the wind-shield. Drop sash back of driver and in cross partition provides for ventilation. The chassis is a standard Cadillac "eight," with 145-inch wheel-base, and the body was built by Terrill Brothers, of Rahway, N. J., in accordance with the hospital's designs and specifications.

Fig. 1 shows the exterior appearance of the car (note small overhang and symmetry). Fig. 2 shows the left or

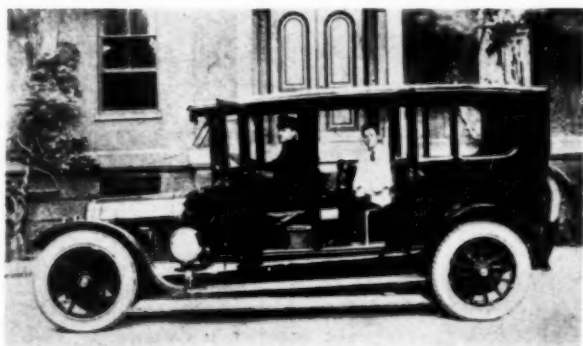


Fig. 2. McGann hospital ambulance. Divided as limousine.

driver's side (note driver's seat in vestibule and disappearing seat at the left of rear compartment). The emergency stretcher suspended from the roof is supported by sockets carried on partition in the rear of driver's seat and the rear seat. Fig. 3 is a right interior view (note wide door opening and position of stretcher-carriage so far forward as to provide ample leg room between stretcher and rear seat). The stretcher-carriage is sup-

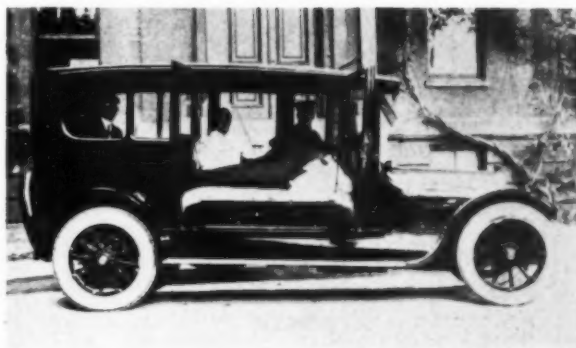


Fig. 3. McGann hospital ambulance. Opened up for one patient and relative.

ported by legs at the forward end, and the pivoted arm is supported on the floor of the car at the rear door joint. Fig. 4 shows the stretcher-carriage swung out at somewhat less than right angles with the car and supported

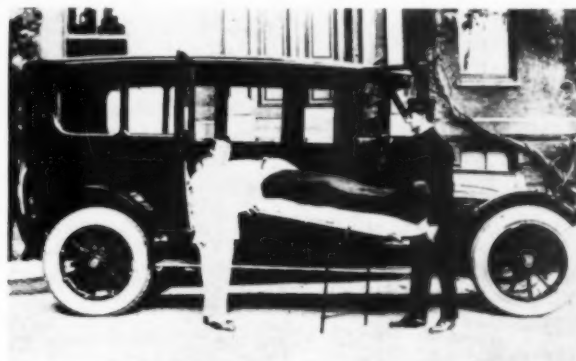


Fig. 4. McGann hospital ambulance. Opened up for one patient.


by the pivoted arm and extension legs. The equipment of the ambulance includes lockers under the rear seat and to the right of driver, electric lights, electric gong, blanket rail, and exhaust heater.

WANT MUNICIPAL HOSPITAL LAW

Northwestern Nebraska Medical Society Petitions Legislature for County Hospital Legislation

A resolution recently passed by the Northwestern Nebraska Medical Society sets forth the advantages to the public, in the way of savings and more efficient service, from the establishment of small, well-equipped hospitals, opened to all recognized practitioners, in villages or cities of the second class. The society therefore petitioned the governor-elect, lieutenant governor-elect, and legislature of the state to enact a measure enabling any village or city of the second class in Nebraska to vote bonds to an amount not exceeding 10 percent of the assessed valuation of the purchase or erection of such a hospital, and to levy a tax of not more than 20 mills on the dollar per annum for its maintenance. The proposed measure is modeled on the Iowa county hospital law, except that it enables municipalities instead of counties to erect and operate hospitals.

The Waynesville Hospital Association, a new corporation at Waynesville, N. C., has purchased in that city a large residence property, which it will fit up for hospital purposes.



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Minnesota's Work in Tuberculosis

We are publishing elsewhere in this issue two articles on Minnesota's county tuberculosis sanatoriums, and the remarkable record which that progressive state is making in the fight against tuberculosis. Right here we should like to remind our readers of a few of the things which have been achieved out on the prairies of the Northwest.

1. Minnesota has provided institutional care for a larger proportion of her tuberculous population than any other state in the Union. She has not merely provided this care; she has brought it to the doors of her citizens. Realizing that sanatoriums can accomplish nothing unless patients can be induced to enter them, and that separation from the patients' families is generally the greatest deterrent, Minnesota has devised and put into operation a system of county hospitals. Over 60 percent of the population of the state thus has sanatorium facilities within easy reach, and we have no doubt that provision will be made in the near future for the remaining 40 percent.

2. In construction, equipment and management, these county tuberculosis hospitals have been kept on a uniformly high plane. All buildings must conform to the standards set by the state advisory commission, as explained in Dr. Bosworth's article. Each sanatorium is equipped

with all the most modern appliances, whether for treatment or for sanitation. The administration has not been allowed to fall a prey to politics. The medical superintendents are not broken-down hacks or failures who happen to have friends or relations in political power; they are tuberculosis experts who stand high in the profession, and are employed on full time.

3. Minnesota realizes not only the importance of sanatoriums, but also their limitations. She appreciates the necessity of checking the disease before the patient arrives at the sanatorium stage. The state has, therefore, instituted a rural dispensary service, and has supplemented this by the work of visiting nurses. The need, too, of providing tuberculous patients with work, so that they may be partially or fully self-supporting, has not been overlooked; this problem is being worked out with success in certain sanatoriums.

4. Above all, Minnesota has had the wisdom to confide the oversight of her county sanatoriums to alert, progressive and most enthusiastic specialists in the treatment of tuberculosis. Every county sanatorium in the state is inspected at frequent intervals by some representative of the state advisory commission, in order to avoid deterioration of the service to the level of a county poor-farm. Probably there are no state institutions in the country which are so frequently or so thoroughly inspected.

We know that those who are interested in anti-tuberculosis work will wish to keep an eye on what Minnesota is doing. We are, therefore, glad to be able to promise a number of articles on the sanatoriums of Minnesota and the work that is being done there.

Hospitals and Group Diagnosis

The hospital is not merely an aseptic building in which sick persons may be deposited and cared for. It has not discharged its full duty to the community when it has lavished care on the patients within its walls. The hospital, if it be true to its highest ideals, owes to the profession the duty of leadership and to the community an intelligent consideration of the general problems of disease and suffering. Two suggestive recent articles represent attempts to correlate the hospital with one of these larger community problems.

Dr. M. Schulmann¹ suggests that the needs of the middle class, who cannot afford expensive specialists like the rich, and who cannot accept the charitable service provided for the poor, might be met by a paid group service, offered for moderate fees. Such service might be rendered either

¹Schulmann, M.: New York Med. Rec., 1916, CV, No. 3; abstr. in THE MODERN HOSPITAL, CUPP. Hosp. Lit., this issue.

by hospitals or by private groups, but the hospital would have the advantage of superior facilities and greater prestige. An important and interesting experiment in this direction is described by Dr. Fayette Watt Birtch,¹ of San Francisco, in a recent number of the *Interstate Medical Journal*.

Twelve members of the staff of St. Luke's Hospital, interested in various fields of medicine, have organized for team-work on different cases referred to them by general practitioners. Each member of the team makes an independent examination and a written report. Then the team meets for comparison and discussion of the findings, the patient's own physician being invited to be present at the meeting. If an agreement is reached, the findings and recommendations for treatment are turned over to the patient's physician; but if anything remains in doubt, the case is remanded for further investigation. This method, by which each patient receives an examination from all the specialists as a routine procedure, is to be distinguished from the plan adopted in certain other centers well known for their methods of group diagnosis, by which the patient is first examined by a general clinician, and by him referred only to such specialists as he may think best. The charge for this service is graduated according to the patient's ability to pay, the rate being \$35 for each \$100 monthly income. Thus the patient, though he obtains service of a character far above anything that would otherwise come within his means, is not made an object of charity. Nor is the private practitioner made the subject of unfair competition; the case is never taken out of his hands, and the hospital group, so far from competing with him, merely puts at his service their facilities for diagnosis.

Another interesting experiment in group diagnosis will be afforded, provided the plan is put into operation, by the proposed diagnosis stations of the Chicago Municipal Tuberculosis Sanitarium, described elsewhere in this issue. The service at these stations is to be rendered to the patient free, but only through his own physician, and therefore it cannot tend to undermine his position, particularly as the physicians at the diagnostic stations are to be, as far as possible, full-time, salaried men, without temptations or opportunities to engage in competitive private practice.

It is too early as yet to decide what method will prove to be the most successful in meeting the undoubted need of the public for skilled service at moderate cost; but it is encouraging to see that real efforts are being made to meet it.

The Tuberculosis Problem, Ever Changing Yet Ever the Same

We present this month some interesting material on the ever-pressing tuberculosis problem. Minnesota, a state that has been making a remarkable record in the antituberculosis campaign during the past four years, is represented by two articles, one, on the Minnesota County Tuberculosis sanatorium system, by Dr. Robinson Bosworth and Messrs. Sund & Dunham, and the other, on one of these county sanatoriums (Nopeming Hospital), by Dr. Arthur T. Laird and Mr. W. L. Sullivan. In connection with the campaign in New York we have some news notes and two articles, one on home care and employment of the tuberculous, by Mr. Edward Hochhauser, of the Committee for the Care of the Jewish Tuberculous, and the other on the "preventorium" in New Jersey for New York children who have been exposed to tuberculosis. From Chicago comes an article on a most interesting municipal experiment—a projected clinic which embodies several unique features and by means of which group diagnosis will be brought within the reach of the average practitioner and his middle-class or poorer patients. In addition, the Current Hospital Literature department contains abstracts of several thought-provoking articles on sanatorium, dispensary, class, and home treatment of tuberculosis.

This material, coming as it does from widely separated sources, naturally represents several very different points of view. Two or three collective impressions, however, emerge from the mass. One is the apparent contradiction between the growing strength of the tuberculosis sanatorium movement and what looks at first glance like a movement away from reliance on the sanatorium. See, for instance, the articles by Russell¹ and Pratt,² who contrast sanatoriums with dispensary or class treatment, to the advantage of the latter. The contradiction, after all, is such merely in appearance. We are only waking up to the need for sanatoriums. At the same time, we are only waking up to the fact that the sanatorium does not, in and by itself, solve the tuberculosis problem, and that we shall accomplish very little through our sanatoriums unless at the same time we study closely the needs of the patient who has not reached the sanatorium stage, and of the one who has been discharged from the sanatorium. We must on the one hand make every effort to arrest tuberculosis in its incipency—to keep the early case from needing sanatorium care. On the

¹Birtch, F. W.; *Interstate Med. Jour.*, 1916, XXIV, No. 1; abstr. in *THE MODERN HOSPITAL*, Curr. Hosp. Lit., this issue.

¹Russell, J. F.; *Med. Rec.*, New York, 1917, XCI, No. 3; abstr. in *THE MODERN HOSPITAL*, Curr. Hosp. Lit., this issue.

²Pratt, J. H.; *Boston Med. and Surg. Jour.*, 1917, CLXXVI, No. 1; abstr. in *THE MODERN HOSPITAL*, Curr. Hosp. Lit., this issue.

other, we must realize that we have not finished our task when we have tossed an "improved" patient overboard, to sink or swim. As a patient who has gone through this ordeal suggests,¹ we really cannot afford to go to the trouble and expense of saving his life by sanatorium treatment, only to throw the result away by our indifference to what happens to the same patient outside the sanatorium gates. Apparently one of the strong points of the class and dispensary method of treatment is that it teaches the patient to live as he should in his normal surroundings, not merely in the temporary shelter of a specially prepared environment. This, of course, is not to deny the value and necessity of sanatorium treatment in certain cases, both for the sake of the patient and for the protection of his family and the community. As indicated above, we must have sanatoriums, and we must realize that sanatoriums alone cannot accomplish everything.

The Front Door Superintendent

Hospital superintendents tend just as much to lean toward certain specialties in their administration as do other professional people. There is the superintendent who pays special attention to the financial operations and the buying of supplies for his institution; he prides himself on his skill in buying and in the use of hospital commodities, and the trustees and medical staff and supporters of the hospital recognize these special abilities in their superintendent.

There is another class whose exponents give special attention to the medical side of the hospital's activities, keep thoroughly informed as to the needs and activities of the medical staff, and take great pride in seeing that the medical men and their patients have the necessary things.

There is yet another class whose members give particular attention to the nursing welfare of the hospital. This class is made up mostly of women who have been trained as nurses before beginning their executive careers.

There is still another superintendent who might correctly be termed the "front door superintendent;" and we sometimes feel that this superintendent will be kept in closer intimacy with his hospital than any of the others. The front door superintendent has his office close by the public entrance of the hospital, possibly adjoining the coat room or consultation room of the doctors and near the reception rooms for visitors; he spends a good deal of his time in the business office, looking over records of patients to see that they are kept up correctly, as they are returned to

the office after the discharge of patients. He is to be met in the front halls; he sees the doctors as they come in and as they go out; he has an intimate handshaking acquaintance with very many visitors to the hospital.

To such a superintendent as this it is common for the doctors to bring their troubles—to tell of the little slips in technic, in courtesy, and in attention to patients, visitors, and the doctors themselves that occur upstairs. Visitors coming to see patients or leaving again tell him what is happening to their sick relatives or friends.

In this way the superintendent is enabled to keep a check on the intern service as viewed by the doctors, the nursing of patients, and on almost all the other activities concerning the "upstairs" part of the house. He will obtain information that he could not possibly get on his daily rounds, and he will obtain many a hint and clew to shortcomings in administration and for betterment in the hospital service.

The front door superintendent has his finger on the very pulse of the institution—not that he must stay at the front door all the time, but it is a mighty good place to be during the morning hours when the doctors are coming and going, and during the visiting hours.

The Autocrat of the Staff

Recently there was an upheaval in one of the large eastern hospitals. The chief of the surgical staff, who had been the surgical autocrat for many years, declined a reappointment because four younger surgeons were put on the staff without his consent.

The professional opinion, reflected in the public press, was that there was a "medical ring" in the hospital. The rules provided that patients who could not pay for a private room, minimum charge \$25 per week, went to "the service" and out of the hands of the men sending them in. The younger men said this was discrimination against them because their patients could not pay such large charges, hence they were deprived of the privileges of the hospital. The authorities of the hospital sided with the younger men, and, while the chief surgeon was reappointed, his autocracy and monopoly were taken away. He declined the appointment, as has been said, on the ground that, since he could no longer control the service, he could not conscientiously serve.

The name of the hospital in this case is of no consequence, but the condition of affairs which has just terminated in it is so common in hospitals in this country that the case is worthy of more than passing notice. Hospital superintend-

¹Vogel, L. G.: Jour. Outdoor Life, 1917, XIV, No. 1; abstr. in THE MODERN HOSPITAL, Curr. Hosp. Lit., this issue.

ents can read between the lines in this case, and fully appreciate just what was going on there. One of the trustees, commenting on the refusal of the chief surgeon to serve under the new conditions, said: "We will lose a good many patients at first, but we think that opening the hospital to a larger number of virile young men will soon overcome this."

How many hospitals in this country are overawed and domineered over by the chiefs of their respective surgical staffs, and afraid to break this autocratic and ruinous rule for fear of losing the surgeon's private patients? Don't the hospitals know that in each case the surgeon needs the hospital far more than the hospital needs him? Don't the hospitals know that if they dethrone their autocrats, the new men, younger, more active, better schooled, and with more scientific training, lacking only experience, will forge ahead, and take the hospital ahead with them?

Have courage, hospitals, and dethrone your autocrats.

Politics in a State Hospital

The State Hospital for Nervous Diseases at Little Rock, Ark., has been for two or three years without a permanent superintendent. Some excellent, experienced, and highly trained men have been there, but each, in turn, has been forced out by politics.

Recently Dr. M. B. Heyman, of the Central Islip State Hospital, of New York, was offered the superintendency, but, after serious consideration, he declined, giving as his reason that politics in the management of the institution would make any superintendent's tenure insecure, and that no one, however conscientious, could institute the much needed changes under such conditions. The job is going begging, although it is an opportunity that alienists and state hospital administrators would reflect on a long time before refusing.

How long are the people of this country going to permit peanut politics and graft to manipulate their eleemosynary institutions? And what are the people going to do about it?

"Meat" From an Annual Report

The following paragraph, taken from the fourth annual report of the San Francisco Hospital for Children, so completely meets our idea of how an annual report should be made up that we feel like calling attention to it as prominently as possible:

On another occasion Houdini the Magician generously gave an hour of his time to entertain the little patients with his marvelous tricks. A day long to be remembered was that of K. C. B.'s day at the Exposition, when thirty

of the little people in automobiles joined the parade on Van Ness avenue to have their first view of the wonderful Exposition. It was the fifth anniversary of little Bobby's entrance into the hospital, a long time to be "shut in," and his excitement and delight were unbounded. It was a long, beautiful day, but no one complained of being tired and no one was the worse for the excitement. This was followed by the visit of the Seattle Police Band, brought out by the children's friend, K. C. B. Hearing a little wish expressed that the children in the hospital might have another day at the Exposition, a generous friend more than gratified the modest wish by sending a check for \$1,000 to Mrs. George Cameron, president of the "Auxiliary," and by reason of this most generous gift many of the children had the great pleasure of many visits. Automobiles carried them, in charge of nurses, to the Fillmore street entrance, where they were met with wheel chairs and taken wherever they expressed a wish to go. The wheel chair men were most kind and thoughtful, explaining the exhibits and doing everything in their power to add to the happiness of the children. No greater pleasure and none more instructive could have been given them, and they enjoyed it to the utmost.

It seems probable that the "children's friend," K. C. B., will want to do something else to make the little patients happy, and that other "generous friends" will send \$1,000 checks to Mrs. Cameron for the same purpose—and that still "others seeing," may go and do likewise.

Our New Editorial Offices

The editorial offices of THE MODERN HOSPITAL in Chicago have been removed from the tower of the Tower Building on the lake front to the Conway Building, 111 West Washington street, corner of Clark. We now have a larger suite of offices, have considerably increased our personnel, and are planning our work on a more ambitious scale. We think that the changes will be reflected in a better, more interesting and profitable journal.

Miss Goodrich Assumes New Responsibilities

Miss Annie W. Goodrich, editor of the Department of Nursing of THE MODERN HOSPITAL and assistant professor in Teachers College, Columbia University, has recently been appointed director of the nursing service of Henry Street Settlement, New York city. Miss Goodrich will carry on her former duties in addition to those of her new post. The Henry Street Settlement furnishes field work for the post-graduate nurses' course in Teachers College.

New Officers of the West Virginia Hospital Association

The West Virginia Hospital Association has elected the following officers: President, Dr. Wm. A. McMillan, superintendent McMillan Hospital, Charleston, W. Va.; secretary, Dr. W. H. St. Clair, superintendent Bluefield Sanitarium, Bluefield, W. Va. The next meeting will be held in Wheeling, in May, 1917.

The Bethesda Hospital, a new institution, will soon be opened at Hornell, N. Y.

REMODELING A HOSPITAL

Obsolete Arrangement Brought Down to Date at Minimum Expense at Beth Israel, New York

BY LOUIS J. FRANK, Superintendent.

The present arrangement of the fourth floor and part of the fifth floor of Beth Israel Hospital may serve as an example of the many changes necessary to convert a hospital built, because of necessity, without anticipation of its future needs, into one which modern advance in hospital constitution and management demands. A glance at the original use of the fourth floor will indicate the lack of convenience in arrangement, the disregard of proper rela-

thus provided had the advantage of privacy, and gave to a larger number of inmates the convenience of kitchen proximity, the nurses' dining room now occupying space previously used by the superintendent. The old nurses' dining room at the end of the corridor, and thus distant from the serving room, was now converted into a completely equipped and thoroughly active pathological laboratory, with comfortable provision for eight to ten workers. This permitted extension of house staff duties in providing a preliminary laboratory course preparatory to duties on the medical or surgical staff. The clinical laboratory, previously on the third floor and now used as record and board room, was moved opposite and adjoining

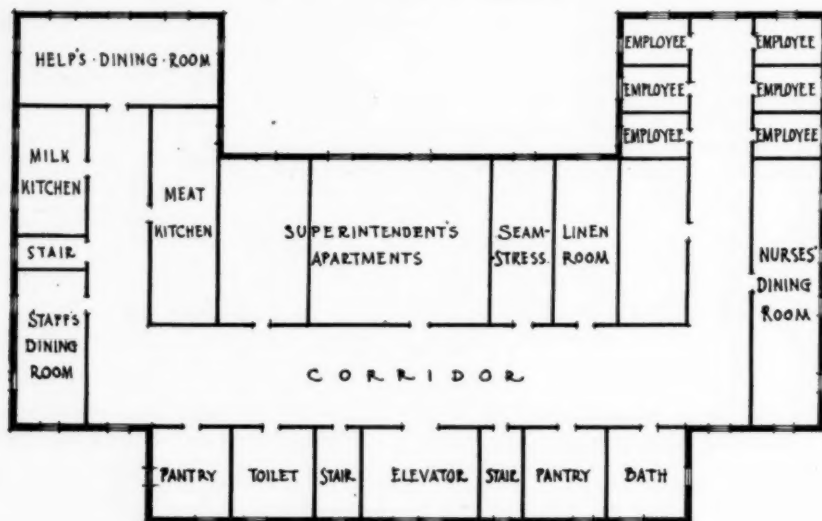


Fig. 1. Beth Israel Hospital. Fourth floor plan before changes.



Fig. 3. Fifth floor plan before changes.

tion between use and value of space, and the inconvenient and unnecessary work in maintenance of so unbalanced a scheme. The changes made and indicated on the second diagram were consecutive to the order of their necessity, and have been gradually accomplished without suspending any of the activities of the departments affected.

The first change took the superintendent's quarters from the main part of the fourth floor, adjoining the kitchen, into the farther corner of the south wing, previously used as sleeping apartments of the matron, launderer, two porters, and one staff man. Part of this space was isolated by closing the corridor, and the apartments

the pathological laboratory, and what was formerly the matron's room was converted into a bacteriological laboratory.

The radiographic room, which had been placed on a private floor in totally inadequate and inconvenient quarters, was now placed opposite the pathological laboratory in what had been a room for employees. As the needs of the department grew, a bath room opposite was made into a dark room, with apparatus of our own design, the first of its type in this country. It is this type of dark room which has since found its way into every large laboratory in the newer hospitals. An x-ray operating room then

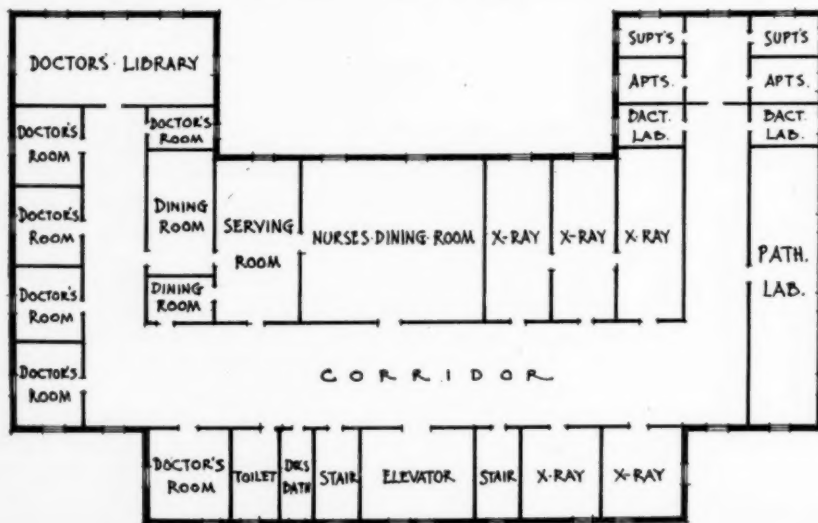


Fig. 2. Beth Israel Hospital. Fourth floor plan after changes.

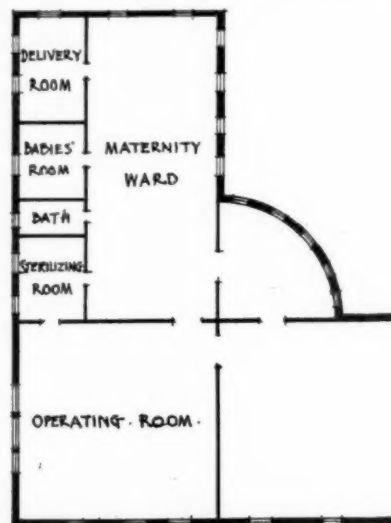


Fig. 4. Fifth floor plan after changes.

displaced the linen room, which was accordingly located in the basement. The pantry adjoining the dark room, and now inconvenient to kitchens, became a fluoroscopic room. Thus were centralized all laboratories except the clinical, which was established under a separate fund, as an iron and glass structure on the roof of the north wing. The physiological laboratory is in a transitional stage and is appended to the chemical laboratory.

Then arose the necessity of providing our nurses with training in obstetrical work, and abandoning our custom of sending them to other special institutions for this essential branch of their training. As a preliminary, the kitchens, pantry, and employees' (porters, orderlies, etc.) dining rooms were moved to the basement, and the pantry to a specially built room under the sidewalk. In the space thus obtained, sleeping rooms, bath, library, reception room, and dining rooms exclusively for use of the house staff were provided, permitting complete exclusion and privacy of staff when not on duty. The kitchen, now in the basement and communicating with the fourth floor by a dumbwaiter, permitted the installation of a serving room, with hot boxes, range, etc., between the three dining rooms, arranged so as to open off from this important station.

Thus was obtained the entire north wing of the fifth floor, which, when occupied as bed rooms only for the staff, represented as much space as an entire private pavilion of 16 beds, but was not accessible from the fifth floor, the only entry being through the corridor and staircase on the fourth. A passageway was built into the corridor on the fifth floor, and the corner of this wing adjoining the operating room was fitted up with new and efficient apparatus as a sterilizing room, replacing the old sterilizing room previously at the farthest extremity of the operating room suite. In this wing provision was made for a 6-bed obstetrical division, including delivery and operating room, infants' room, bath room, and diet kitchen. With tiled floors, indirect lighting, and modern equipment of accessory rooms, this ward has become ideal for its purpose.

The advantage of the changes outlined in this brief sketch are, of course, best illustrated by the advancement which they have permitted, and, whereas in detail they were possible only in our particular institution, in general plan may be adapted to the oft-occurring contingencies of other institutions.

ELECTRICITY IN THE HOSPITAL

Motors, Lighting, and Fuel in Great Variety Add to the Conveniences, Economy, and Efficiency of the Service

BY F. C. MYERS, The Society for Electrical Development, New York.

The series of articles in *THE MODERN HOSPITAL* by John Allan Hornsby, M. D., on The Small Community Hospital, is extremely interesting and instructive. Authorities like Dr. Hornsby evidently appreciate the importance of such factors as electricity in hospital life. Not all physicians, however, realize the important part electricity plays in alleviating suffering, facilitating the care of the sick, and making life in confinement more bearable.

First impressions are always important and lasting. First impressions on patients many times come a long time after they have entered, but usually the first impression is made immediately on entering the building. Therefore, the entrances, whether reception hall or ambulance receiving room, should be well lighted and ventilated and equipped with the conveniences necessary to create a feeling of security and good treatment. With the hall and reception rooms well lighted and ventilated, visitors

are favorably impressed and in a mood to view with favor the work being done and all arrangements for comfort and convenience.

The lighting, of course, will be by electricity, which can always be available under even the most adverse conditions. The safety, convenience and effectiveness of electric light is too well understood by the medical profession to need any defense here. It must be pointed out, however, that quantity of light is not a measure of quality of illumination.

Certain rules and conditions must be observed if satisfactory results are to be obtained. There must be sufficient light to eliminate eye strain. There must be no glare, which means that the source of light must be out of the line of vision and no direct rays from the lamp should strike the eye. These requirements are easily complied with and no complications appear when the conditions are considered in connection with the large variety of fixtures available.

Ventilation is another important consideration for hospitals. The extent to which the air in a hospital is controlled will depend on the authorities themselves. Fans, of course, are well known and understood, and apparatus is now available not only for positively controlling the amount of air that enters the halls, wards, and rooms, but also for washing and controlling the temperature and humidity of all the air entering the building.

In certain industries buildings have been erected with the windows sealed and the doors airtight when closed. Air is pumped through air washers, tempering equipment and humidifiers, so that the temperature and moisture content is constant throughout the year regardless of outdoor conditions. At the same time there are no drafts, and sufficient air is provided for every person inside. This can be done for hospitals as easily as for any other institution. Most air-controlling apparatus is driven by electric motors on account of their safety, quietness, and reliability.

The next part of the hospital with which the public and patients come in contact may be the elevator. Electric elevators in many styles and sizes are available. Their safety is proverbial and if maintained in good condition are noiseless. Quietness is an essential if the best interests of patients are to be conserved. Electric elevators can be operated by an attendant or automatically by push buttons without an attendant.

Comparison of the cost of attendance and the interest on the increased investment necessary to install the automatic elevator, if the amount of service required is limited, will determine whether or not the investment should be made. Whenever the wage of an attendant will be more than the interest on the investment, the hospital management will find the automatic elevator advantageous. If the elevator will be in constant service or if there is an employee who can operate an elevator in connection with his other duties, the hand-controlled equipment will be satisfactory.

All designers of hospitals strive to locate all rooms and wards so as to have ample natural light and good, fresh air. As has been pointed out, artificial ventilation can be provided to meet every requirement and insure a constant circulation of clean, pure air at any desired temperature. Daylight, especially sunlight, cannot be surpassed, but frequently light is required on dark days and during the night, and electricity is the most practicable method of illumination.

Electrical installations can be made to meet any condition and light of any intensity can be provided. Light-

ing fixtures that give a restful, steady light, not trying to the most sensitive nerves, can be had and the new "daylight" lamps permit almost exact duplication of natural light. Electric light throws very little heat into the room and does not vitiate the air.

The diet kitchens are especially susceptible of electric treatment. Electric hot-plates can be used to advantage because they are heated by turning a switch instead of using a match or keeping a fire constantly burning. Fuel—in this case electric current—is consumed only when cooking is actually being done and the air is not fouled or vitiated. There is absolutely no fire danger. Electric water-heaters that will hold the temperature automatically at any predetermined point are available. These devices use current only in accordance with the amount of water used and can be operated constantly.

Coffee percolators, egg-boilers and other equipment can be operated electrically to excellent advantage and under absolute control at all times. This is a material advantage and eliminates much of the danger of spoiling the food being prepared for patients. Electric stoves with or without ovens and provided with time switches are available to meet any requirement.

In considering electricity for the diet kitchens, the requirements of the main kitchen are faced in miniature. Electric ranges with all the features of gas or coal ranges are being manufactured and used with marked success. Electric cooking has several marked advantages: The heat is under absolute control always. The heat is constant and regular under all conditions, not being affected by varying drafts, temperatures or the conditions of flues. There is no oxidation to vitiate the air and no smoke or obnoxious gases. Practically all of the heat is used, very little escaping into the room to raise the temperature abnormally. Cool, comfortable kitchens enable chefs not only to do their work easier, but to do it better.

In the main kitchen, electrically operated dish-washing machines can be used with the assurance of absolute sanitation by thoroughly cleansing the dishes and eliminating the use of the insanitary dish-towel. There is other electrically operated equipment suitable for kitchens, such as bread-mixers, food-choppers, coffee-grinders and roasters, and vegetable-peelers.

If the hospital is more than one story high, some means must be provided for elevating food, drugs, etc., from the lower floors or basement. The elevators may be used for handling large quantities, but for individual service dumb waiters will be most convenient. They must be noiseless and easily operated and nothing can be quieter than an electric motor located in the basement some distance from the sick rooms and operated by pressing a button to lift or lower the dumb waiter. Several kinds are available and their action is positive and reliable. They materially facilitate and improve the service duties of the nurses.

The operating room and operating service rooms will require plenty of light and ventilation. Special lighting arrangements will be necessary for the operating room, in order that there shall be no shadows to interfere with the surgeon and his work. A special adjustable light that can be set to throw its light directly into the wound will be of material assistance. Electric sterilizers can be installed so that there need be no fire near the operating room. Ventilators can be installed to remove foul odors, to maintain the correct temperatures and to insure clean, fresh air for the patient, the surgeon and his assistants.

All these have a powerful influence that will help to lighten the operation for everyone. The equipment of the operating room is most important and should have the

most careful study. The danger of infection is great and a slip of the knife due to fatigue or the mistaking of a part due to shadow may prove fatal.

Electric fans are an important part of every hospital equipment. Moving air under any circumstances is more beneficial than still air. Extensive experiments have demonstrated that moving air low in oxygen and high in carbon dioxide will have a less depressing effect than still air of the same or even better quality. Fans cost little to buy and little to operate. A 12-inch fan will consume about 55 watts and can be operated continuously for almost 20 hours for the cost of one kilowatt. This is at full speed. At lower speeds the current consumption will be proportionately less.

Fans can be used to insure proper distribution of heated air, cold air, or simply to keep the air in circulation. Fans have been used for drying clothes, for drying hair after washing the head. Set in transoms, they are used for expelling or impelling air. The same work can be done by placing them in open windows. They are especially welcome during the hot summer months, but their use is not limited to that season. If forced ventilation is installed for the entire institution, the need for fans may be limited to a certain extent.

Satisfactory signal systems must be electrically operated. No other method has been developed for doing this satisfactorily. Nothing is simpler or easier than pressing a button. Various methods of utilizing the energy thus set at work have been devised. Some hospitals depend on bells, buzzers or lights, others on combinations of these. Some arrangements start the operation of recording apparatus which records the time the button was pressed and the time elapsing before the call is answered.

Laundry machinery is especially well adapted to electric drive and operation. Washing and ironing can be done by electricity with less danger, quicker and easier than by any other means. Current is consumed only while the equipment is being used.

Mention should be made of refrigeration. Electrically driven refrigerating and ice-making plants can be had so arranged that temperatures can be regulated automatically within narrow limits. Electricity is used only for a short time daily. By installing refrigerating plants, low temperatures can be had where they are wanted and there will be no ice to be handled. A sanitary advantage in this arrangement is that the air will be dry in refrigerators, thus providing a dry cold instead of a moist germ-breeding atmosphere where food is to be stored. Lower temperatures are also obtainable and can be maintained indefinitely.

There are two sources of electric current: It can be purchased from a company making a specialization of its generation or a private plant can be installed. Which method is to be preferred can be determined only by a careful study of each individual case. In the past the service of central stations was not so reliable as it might have been, but now guarantees can be made for constant service day and night. Private plants will be reliable in exact ratio with the quality of the equipment and the care taken in their operation.

Sanitary and safe hospitals are the objectives of all builders. Electricity plays an important part in producing these conditions. Even heating can be provided by electricity under the proper conditions, but usually it will be found cheaper to install a heating plant. By locating this in a building away from the hospital proper it will be possible to have the hospital entirely free from fire and without high-pressure steam.

HOME TREATMENT FOR THE TUBERCULOUS

How the Committee for the Care of the Jewish Tuberculous Has Solved the Problem—Restoration to Economic Usefulness an Essential Part of Treatment

BY EDWARD HOCHHAUSER, Executive Secretary Committee for the Care of the Jewish Tuberculous, New York City.

"Would you help a blind man half-way across Broadway, and then leave him to care for himself the rest of the way? If not, would you help a patient suffering from tuberculosis half-way across the road to health and economic usefulness, and then let him go the rest of the way as best he could?" We addressed this question to the New York public at the end of a two-year experiment in the after-care of sanatorium patients. This work was the outgrowth of a study conducted in 1912, which showed that of the patients discharged from one sanatorium, the cases being classed as improved, quiescent, or arrested, about 45 percent were dead or worse within six months to two years after discharge. Our experiment was conducted to determine whether this waste, due to relapses, could not be reduced.

We believed that our work, to be most effective, must concern itself with the patient as part of the family; that we often failed because we treated the patient as if he were isolated and living alone. The family and not the patient was the unit of care. Our work was primarily a scheme of after-sanatorium care, as in most instances we took the family under care after the patient had been discharged from the sanatorium. A large number of the patients stayed but a few months and were discharged as improved or quiescent. We found that practically all discharged patients, even those with so-called arrested and apparently cured cases, required careful follow-up and care. Our scheme of periodic physical examination of all members of the family has been the means of locating fourteen new cases of tuberculosis; most of these were unsuspected and in the early stages. Where the patient or the family showed sufficient intelligence and willingness to cooperate, and the patient's condition was not too far advanced, we have kept him at home. Our results with comparatively few patients (sixteen) kept at home from six months to two and a half years have prompted us to extend this phase of our work, and we are treating at home, and often at work, patients who were awaiting admission to sanatoriums. In instances of anemic children, we have kept at home many who were proper subjects for the preventorium. Our experience justifies the belief that gains made at home are more lasting and beneficial to the child than those had away from home. We have been able to secure the cooperation of the family by demonstrating what proper care and diet do for one child, with the implication that this can be done for the rest of the family.

In the instances of families requiring relief, extra allowances are granted. While it increases the cost of caring for the family, it is more economical than institutional care. There are instances in which institutional care is necessary, just as in many cases sanatorium care may be necessary before the home care can be effective.

Now, in the third year of our work, we are taking the family under care when the patient is accepted for the sanatorium. This gives us an opportunity to reach the family earlier, aid the family medically or socially while the patient is at the sanatorium, with the result that the patient is assured that his family is provided for during his absence, and on his return he finds them in better physical condition than when he left them.

We often found it necessary to move the family to bet-

ter neighborhoods and more sanitary rooms, but they have been moved to tenements in which they could afford to live. Our committee is now caring for 215 families, in which there are 912 individuals, of whom 249 are tuberculous. Of the 215 families and single patients under care, 111 (51 percent) required relief when first taken under care; 54 of these are now self-supporting, so that 57, or 26.5 percent of the total number still require relief.

Our method of treatment includes a physical examination, and periodic reexaminations of all members of the family, with particular emphasis on the patient. Medical aid is given in the form of extra diet, medicines, or if the mother is the patient, relief from heavy housework. When financial assistance is necessary for rent, food, or clothing, it is granted through the committee, the United Hebrew Charities, a part of our committee, cooperating in each case. The care given ranges from medical care, home visitation by our nurses, dental treatment, to an annual allowance of \$600 for food, rent, and clothing, for one family with seven children under 15 years of age.

Our purpose is not only to arrest the disease, but also to return the patient to economic usefulness and independence. The patient on his discharge is often able to work but part time. He needs to be carried through a period of industrial convalescence, and gradually returned to old-time working capacity.

Returning a patient to industrial life is distinctly a part of his treatment. At least a contributing cause in the relapses that occur is the fact that the transition from no activity, or a few hours of institutional work, to the demands of industry; a full day's work at full speed is too great. We found, however, that employers were not disposed to allow part-time work—they could not afford to keep part-time workers. To safeguard the health of the workers, control the hours and amount of work, and the working conditions, we found it necessary to start a factory of our own. As over 60 percent of our patients are in the needle trade, we decided to conduct some form of needlework. We soon found that it was both advisable and practicable to teach others, not in this trade, to do this kind of work, so that they might be kept under the supervision and control afforded by this factory. Some patients, not in the needle trade, returned to their own work, and were kept under close medical observation. In many instances their work periods had to be broken up with periods of rest. Others, who showed a capacity for business, were started in some small business. Loans for this purpose were made, these varying from a few dollars for peddling to about \$600 to start one of the patients in a paint store. Some, more notably three of our peddlers, one tailor, two small storekeepers, and our painter, have done very well, but comparatively only a few were successful, or conserved their health. The worry incidental to conducting a business often undermines their health.

Our factory is conducted in an ordinary well-lighted loft—some extra windows have been put in so that we might have sufficient light and air. While a comfortable temperature is maintained, the windows are kept open all the time. Our most interested advocate of fresh air is our foreman (not a patient), who formerly conducted a contractor's shop of the poorer kind. He had occasion to remind one of the manufacturers for whom we work, a man who at first was afraid to let us do his work, that in our factory we do not permit anyone to spit on the floor—so would he kindly wait until he returned to his own office.

All workers at the factory are examined regularly. Only patients with negative sputum are accepted. For a number of months they are examined every week or two,

then every three or four weeks, and after about six months they are examined every four or five weeks, unless otherwise directed by the physician. Nearly all workers are paid on a piece-work basis, and the pay is at least as good as the prevailing union wage. The hours of work range from two to eight hours a day, and the kinds of work from buttoning shirts and sewing hooks and eyes to pressing dresses—or perhaps we should say, up to cooking the noonday meal and taking care of our lunch room, for our cook is one of our patients. This patient had been going down hill, but since she has been at the factory, one and a half years, she has improved.

Most of the patients who started at the factory in June, 1915, when it was opened, had not been engaged in any regular work for from two to six years, being maintained by relief agencies during this period. With the exception of one patient, all who started when the factory opened are working full-day, are doing well, seem glad to work, and many are self-supporting. Some, like Mr. Kl., were considered second-stage cases, with a very small capacity for work, and, because of our inability to find work that the physician thought they might be able to do, we were compelled to maintain them in idleness. Such patients are often forced to enter a hospital. We do not send a patient to a hospital because he is unemployable, or because we have no work that he may be able to do. Mr. Kl. with his family had been maintained in the country for about three years, during which time he gave a history of frequent hemoptysis. We brought the family back to New York, principally because the man had shown no improvement in his physical condition, and his disease apparently was progressing. The doctor permitted Mr. Kl. to start on two hours' work. Incidentally, when the man went to the factory he was found to be very inefficient, so that we not only had the task of returning him to economic usefulness, but that of making him more efficient. This twofold problem has presented itself in many of our cases. Kl.'s hours of work were increased very slowly, but at the end of seven months he was found able to work a full eight-hour day, at which he has continued since. His lung condition has improved and is now arrested; he has gained in weight, and his earnings have been increased from \$1 to \$9 per week.

Other patients have improved in physical condition and in economic efficiency, working in our factory under medical supervision. The ability to do work and to be self-supporting is an encouragement to patients. On the other hand, we occasionally have patients who, after one or two weeks' trial at the factory, are found unable to work.

"Why don't you extend your factory by making hospital gowns?" was often suggested to us by superintendents of hospitals and sanatoriums. As a result of this suggestion we started the manufacture of gowns with orders from Montefiore Home and Mount Sinai Hospital. Not having any large selling cost, we found that we could save money for the hospitals and enable our workers to earn a living wage. This is a hopeful development, as it seems to meet our greatest obstacle thus far—phthisiophobia—and poor paying work.

We realize that two or three years' experience in the treatment of tuberculosis is not conclusive. It is, however, fair to contrast the health of the patients under our care with the condition of patients who had not received our special care, but had also been home from the sanatorium the same length of time.

The study mentioned in the beginning of this paper showed a relapse amounting to almost 45 percent for patients who had been home from six months to two years.

In the families under our care, patients in the same condition, six months to four years after discharge from the sanatorium, the relapses were less than 15 percent.

Thirty patients are being treated at home. Sixteen patients have been under care from six months to two and a half years. With the exception of one, who afterward went to the sanatorium, these patients have done well, and most of them have been at work, maintaining themselves and their families in part or entirely. The results in these few cases compare favorably with the health of our sanatorium patients, and have justified us in extending the work to treating at home patients who ordinarily would be sent to sanatoriums for the first part of their treatment.

We have demonstrated that by after-care or home care we can save many patients from relapses and premature death. This treatment, however, must be intensive, and where relief is necessary it must be generous. This form of medical social treatment, by treating patients and their families in their own homes, can be readily extended, as the cost is not prohibitive, and can be maintained by the patients when they are restored to industrial usefulness.

SUMMARY

We believe that:

After-sanatorium care is an important part in the treatment of the tuberculous. Many of the relapses, which now occur, can be reduced by after-sanatorium care.

This is distinctly home treatment.

So long as the patient is part of a family the best results, especially in the instance of a father or mother, can be secured only by treating the patient as part of the family.

Intensive medical and social care of the families of the tuberculous means the early detection and diagnosis of unsuspected cases and the detection and treatment of ailments and diseases other than tuberculosis; it means the prevention of disease.

An important part of disease prevention and treatment is dental treatment.

Many patients can be treated at home with as good, if not more lasting, results, and at less cost. This does not mean that sanatoriums are not necessary, for many patients cannot, will not, and often should not be permitted to take the treatment at home, or at least not until they have learned how to care for themselves, and their disease is controlled.

The return to economic usefulness is a distinct yet important part of the home care of tuberculous patients.

Any scheme of treatment that is incomplete is an economic and human waste. The home treatment of the tuberculous makes more effective the treatment of tuberculosis and strikes the disease at its source, so that it becomes a most important factor of the campaign in the prevention of disease.

A hospital erected midway between Aberdeen and Hoquiam, Wash., by Grays Harbor County four years ago, but never used, has been leased by Drs. Geo. E. Chamberlain, J. B. Kinney, and Oliver R. Austin, all of Aberdeen, and will be opened about March 1, under the name Aberdeen General Hospital. The building has a capacity of 50 beds.

The Steedly Hospital, a private institution conducted at Spartanburg, S. C., by Dr. B. B. Steedly and others, has recently moved into a beautiful, new, four-story building, erected at a cost of \$110,000 and said to be equipped in a very complete and up-to-date manner. Accommodations for 75 patients have been provided. Mrs. Frances M. Montgomery is the superintendent.

MUNICIPAL TUBERCULOSIS DIAGNOSTIC STATIONS

The City of Chicago Proposes to Found a Unique Institution for Bringing Group Diagnosis Within the Reach of the Ordinary Practitioner

The Chicago Municipal Tuberculosis Sanatorium now conducts eight dispensaries in various parts of the city. These have grown slowly from a beginning several years ago in one small room. They are now, in the main, housed and conducted very much as are most other clinics and dispensaries—that is, in unsuitable, insanitary makeshift quarters, with inadequate facilities and by an overworked staff. The clinic at Grand Crossing, for instance,

tuberculosis in any and all of its forms. Chicago is divided by the Chicago River into practically three cities, the south, north, and west sides; hence three main stations are planned, one for each side of the city. Tributary to these main stations is to be a system of dispensaries. While the city will, of course, own the diagnosis stations, it is thought that fluctuations of population can be better provided for if the dispensaries are lodged in rented quarters, on the same principle as the federal government, while owning the postoffice buildings and sites, rents quarters for the postal stations. The board of directors now has funds to build two of the diagnosis stations, which, it is estimated, will cost \$75,000 each. The tentative floor plans, as submitted to the Chicago medical profession for criticism and suggestion, are shown in Figures 1 and 2.

These floor plans, it will be seen, provide for an ample suite of examining rooms, as well as laboratories, x-ray room, etc. It is worth noting that the device of having the inner tier of rooms open on a garden court, with southern exposure, insures automatic disinfection by floods of air and sunshine. Rest rooms are provided for patients who may have found the journey a strain; a diet kitchen, in case the patient needs food to brace him up for his return home; a nursery, where sick or fatigued children may rest before examination. The amphitheater on the second floor, to be used for lectures on public health, conferences of social workers, young physicians, and nurses in training, indicates that it is intended to use these fine buildings as community centers for public health education.

The beautiful surroundings, as well as the provision for the comfort of patients, must tend to make them come more willingly. Fine, sunny rooms opening on beautiful gardens filled with flowers, trees and shrubbery and with a large porch or Moorish gallery on one side where patients may

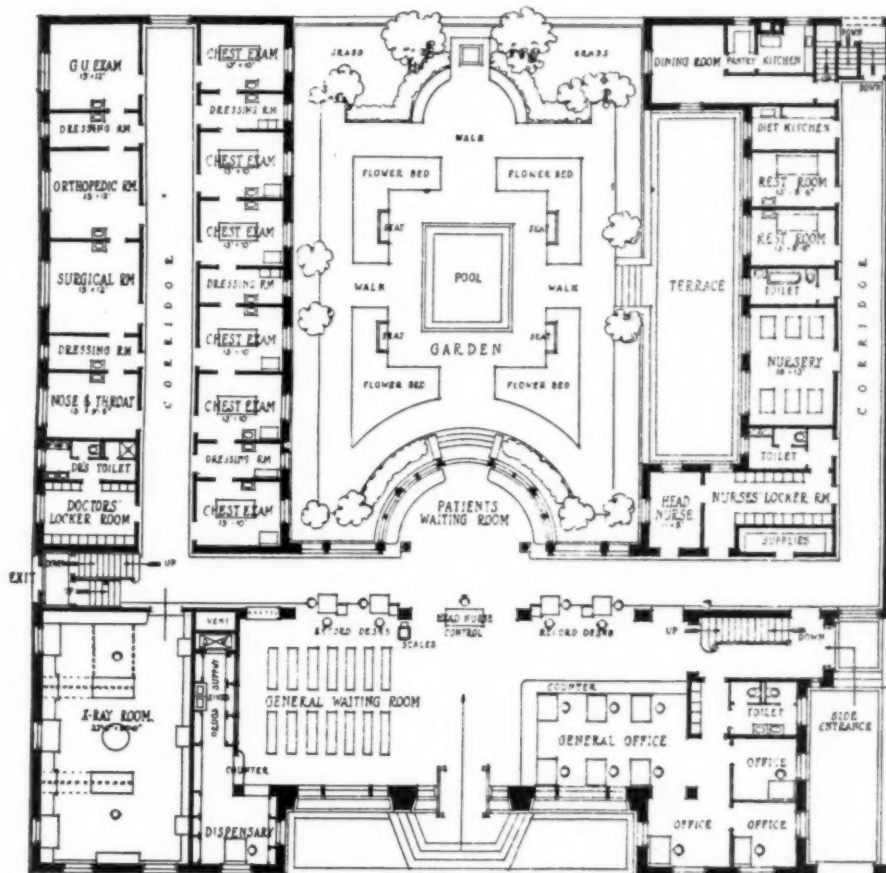


Fig. 1. First floor plan of proposed tuberculosis diagnostic stations for Chicago.

is lodged in a small store fronting on a public street. At Rush Medical College Clinic four examiners work in a room facing on a noisy street, and divided only by cotton curtains.

Realizing that this was not solving the tuberculosis problem, Dr. C. P. Caldwell, president of the board of directors of the Chicago Municipal Tuberculosis Sanitarium, brought the matter before the attention of the executive committee of the consulting staff of that institution. This committee, composed of Drs. A. J. Ochsner, John A. Robison, C. S. Bacon, Carl Beck, Augustus A. O'Neill, D. A. K. Steele, James A. Clark, Edward B. Tuteur, Charles H. Parkes, M. Z. Albro, and Effie L. Lobdell, spent a summer in study of the problem and evolved a unique and comprehensive plan, believed to be adapted to the situation in Chicago. This project is now before the finance committee of the city council.

The plan provides for the erection of diagnosis stations, each provided with every facility for the detection of

rest while awaiting examination, careful attention to the immediate needs of patients for nourishment and rest—all this is going to produce a very different reaction in the public mind from that induced by the unattractive, unhygienic surroundings in which dispensaries are too often conducted. Perhaps it is not too much to say that the reaction on the minds of the members of the staff is going to be desirable. No matter how high the ideals of the ordinary, overworked dispensary physician, his slovenly surroundings must tend to depress his respect for his patients and his own work. Here, where everything centers around the patient and his individual personal needs, the members of the staff, one would think, will never fall into careless, perfunctory ways, or fail to remember that their patients are not merely "cases" or "material," but suffering human beings.

The intention is to put at the private practitioner's service, free of charge, all those facilities for accurate and thorough group diagnosis which otherwise would be abso-

lutely unattainable for patients in moderate or poor circumstances. The floor plan indicates the scope of these facilities for x-ray, genitourinary, orthopedic, surgical, and nose and throat examinations. The biological laboratory is to be in the basement and is therefore not shown on the plans. The work is to be in the hands of a salaried staff, the members of which are to be, so far as possible, full-time men.

The records of diagnosis are to be made in triplicate. One copy is to be kept at the diagnosis station, one is to be preserved at the central office, and one is to be sent with the patient to the dispensary nearest the patient's home. A system of numbering the records is to be adopted which will indicate the patient's geographical location.

The plan has been submitted for criticism and comment to the Chicago medical profession. The great majority have approved it, having in view especially the fact that tuberculosis is largely a disease of the poor, and that it can never be stamped out unless the self-sacrificing work of charitable private practitioners is reinforced by public aid. Such opposition as exists is due, in the opinion of Dr. Caldwell, president of the board, to the inevitable misunderstanding and mistrust of new institutions. The fact that the physicians engaged in this work are paid and in the main employed on full time, it is felt, removes all just cause for complaint on the part of the medical profession. It is hoped and believed that Chicago physicians will come to regard the diagnosis stations as their own, and that they will not only bring their patients there, but come there themselves to work and study.

HISTORY SHEET SHORTHAND

The Story of the Expert Diagnostician and the Puzzled Intern

The system of abbreviations used in some hospitals for recording diagnoses, physical findings, etc., may be a time-saver for the history taker or diagnostician; it is often a time-consumer for those who come after him. It seems evident that, while such individualized systems may work very well for temporary memoranda, used only within the hospital, they should never be inflicted on outsiders. If the histories are typewritten—and they always should be—it is an easy matter to furnish the typist with a key to the code and direct her to spell out all abbreviations.

Apropos of this, Dr. J. N. Hurty, commissioner of health of Indiana, tells the story of the expert diagnostician whose habit it was to write "t. f." for typhoid fever, "pn." for pneumonia, etc. One young man who received the expert's diagnoses was often considerably puzzled by the abbreviations, but his pride would not allow him to admit failure, and he managed to work them out very well until he met defeat before the abbreviation "g. o. k."

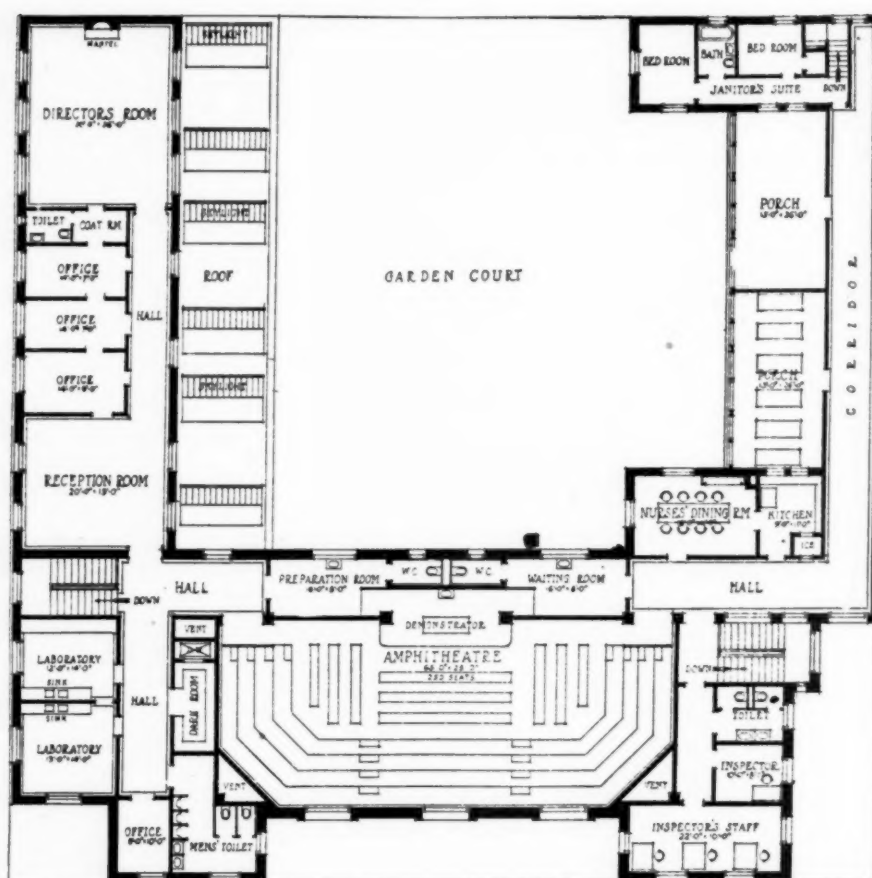


Fig. 2. Second floor plan of proposed tuberculosis diagnostic stations for Chicago.

Neither his medical dictionaries nor his other authorities threw any light on the subject; no more did his examination of the patient, whose condition was obscure. At last, greatly mortified, he went to the office below to see the expert diagnostician, who said in surprise, "Why, don't you know what that means—g. o. k.?" The intern, in humiliation and despair, confessed his ignorance. "Oh," said the expert, in sublime disdain, "that is very simple. It means, 'God only knows.'"

Linoleum and Imitation Leather

BY ALLEN ROGERS, Committee Chairman Pratt Institute, Brooklyn.

There is a great difference between oilcloth and linoleum. Ordinary oilcloth is a coarse jute canvas, painted over a number of times on both sides with a low-grade paint and a finishing application of a printed paint design on one side, followed by a light coating of varnish to the wearing surface.

Linoleum is an entirely different thing, and its chemical philosophy is given by Mr. Armand de Wiele, of Staines, England, in the January number of the *Journal of Industrial and Engineering Chemistry* of the American Chemical Society. In 1864 Frederick Walton discovered that linseed oil, if treated with certain driers and heated and treated with air under given conditions, becomes jelly-like, and that this product, with rosin and gum kauri, on further oxidation by a second process, hardens into a tough substance like leather. The cloth holds linoleum together, but it is this leather-like, thick covering that gives it its wearing qualities. A modification of the process has been applied to the manufacture of imitation leather, which today is doing much to relieve the shortage in the national product.



CURRENT HOSPITAL LITERATURE

ALBERT ALLEMANN, M. D., Foreign Literature.
Army Medical Museum and Library, Office of the Surgeon-General,
United States Army.

Another Step in the Antituberculosis Campaign. Louis G. Vogel. *Jour. Outdoor Life*, 1917, XIV, No. 1.

The author was discharged from a sanatorium after a stay of nineteen months. He was greatly improved, but homeless and under the necessity of self-support. He could not make his mode of life obviously different from that of the normal people around him under penalty of becoming a "social outcast." Following the visit of an injudicious tuberculosis nurse, indeed, he was almost ordered from the Y. M. C. A. dormitory, where he had taken lodging. The food problem he found most trying, though he had no special digestive difficulties. There was also the temptation to neglect his own condition through weariness and lack of incentive. "As I look back over the struggle of that first year," he says, "I seem to see clearly one important reason why many sufferers from tuberculosis are apt to do so well at the sanatorium, where six to eight hours' manual labor has no detrimental effect when combined with good food, proper rest in well-ventilated sleeping quarters, and absence of domestic cares generally—only too soon go to pieces when attempting the same amount of work outside. . . . When one considers how much money and effort are spent to help people back to health . . . doesn't it seem like throwing all this money and effort into a hole to let an arrested case leave the sanatorium and embark practically unsupported on a new effort at life, under harder conditions, that is sure to end in disaster within a year in so large a number of cases?" Vogel suggests the building of small hotels for homeless convalescents of the type which should embody most of the domestic features of the up-to-date sanatorium, such as outdoor sleeping rooms, with warm dressing rooms, tub baths and shower baths, rooms devoted to suitable recreation, etc.

Cost of Treating Pulmonary Tuberculosis, With Special Reference to Wage-Earners and Communities. John F. Russell, M. D. *Med. Rec.*, New York, 1917, XCI, No. 3.

Russell says that tuberculosis is largely an economic problem. Most tuberculous patients eventually become dependent, and he questions whether the vast sums being spent on antituberculosis work are spent in such manner as effectively to halt "the oncoming recruits of the enormous army of the dependent." "My proposal," he says, "is to treat wage-earners, who are mainly ambulatory cases, in special dispensaries. By this means patients in all stages of the disease may be treated without interruption to work, with no time limit to length of treatment. The present plan is to stop their work, send them to sanatoriums to keep them for a limited time and then return

them, whether better, worse or stationary, without further systematic supervision, to their original surroundings." The reason patients cannot be induced to stop work for treatment in the incipient stage, Russell says, is not that they cannot understand the gravity of their condition, but that they and those dependent on them cannot live without wages.

Russell compares the cost of treatment at a special dispensary (his own) and at the Otisville Sanatorium. Fifty patients (this number should not be exceeded at a special dispensary, in his estimation) were treated in his dispensary for a year at a cost of \$10,631. A year's treatment for the same number of patients would cost \$26,827 at the Otisville Sanatorium. The fifty patients at the dispensary were able to earn \$34,268 during the year of treatment; during sanatorium treatment, of course, all remunerative work is suspended.

Arrest of the disease was produced at the Otisville Sanatorium in only 13 percent of cases, according to the 1913 report. Russell has never estimated yearly results obtained at his dispensary, but a group tabulated in 1906 showed apparent arrest in 63.85 percent of the cases ten years afterward.

He enumerates the advantages of dispensaries over sanatoriums, among which are: accessibility to wage-earners, possibility of continuing treatment as long as desirable, small cost of plant and of treatment, saving of wages, and large ultimate percentage of apparent arrest of disease.

Results Obtained by the Class Method of Home Treatment in Pulmonary Tuberculosis During a Period of Ten Years. Joseph H. Pratt, M. D. *Boston Med. and Surg. Jour.*, 1917, CLXXVI, No. 1.

The Emmanuel Church Tuberculosis Class was organized July 1, 1905, for the sanatorium treatment of consumptives in their own homes. Medical advice was given the patients in class meetings once a week, and they were visited at their homes by the class nurse. Patients kept their own records of temperature, pulse, hours out of doors, amount of exercise when exercise was permitted, etc. Insistence was placed on rest in the open air, and patients were provided with facilities for the purpose. Absolute rest in the active stage of the disease, even for non-febrile patients, was insisted on more and more. Patients in all stages of the disease were accepted, none being refused who promised strict obedience to rules and regulations.

From July, 1906, to July, 1914, 189 patients were admitted. Only two of these were finally lost sight of. The record of the others up to July 1, 1915, was: well and working, 104; living, but unable to work, 14; dead, 69. Fifty-six percent of all those admitted to the class (the majority being then beyond the incipient stage) during nine years were restored to health. All patients who remained in the class until, in Pratt's opinion, the disease was arrested and return to work was permissible, were graduated from the class. Of the 87 graduates up to July 1, 1915, 85 percent were well and working on that date. Of 88 patients who left the class for various reasons from four to eight years ago, 66 percent are alive and 60 percent are working. Pratt contrasts those figures with those given by Bardwell for two leading English sanatoriums for the well-to-do (52 percent of discharged patients well or alive four to eight years afterward) and those given by Farmer for Massachusetts sanatoriums (24 percent of patients leading normal lives four to seven years after discharge). The total expenses of the class for the ten years,

which amounted to about \$16,500, were borne by Emmanuel Church. The total earnings of the ex-patients since leaving the class amount to about \$250,000, and the earnings for the year ending July 1, 1915, amount to \$50,000.

Practical Considerations on the Conduct of Work at a Tuberculosis Dispensary. Henry A. Ellis, M. B., B. S. *Brit. Jour. Tuberc.*, 1917, XI, No. 1.

Ellis, who is tuberculosis medical officer to the country borough of Middlesborough, Yorkshire, has made it a principle to employ the limited funds at his disposal in the treatment of patients in the order of least infection. This policy has apparently been successful in reducing the number and ameliorating the condition of cases. When cases are reported early, they rarely "go to the bad." Patients are first observed in their homes, attending regularly at the tuberculosis dispensary once a week, and being visited periodically at their homes by the nurses.

Ellis suggests that providing suitable places for recreation of tuberculous patients during their leisure time would materially diminish the need for sanatorium residence and treatment. A holiday in the country benefits a few patients, but does not appear to be beneficial for many, the reason being that most persons do not know how to amuse themselves outdoors without excessive exertion, the fatigue from which more than offsets the good derived from the fresh air. A light, airy room containing books, pictures, magazines, and suitable games would remove the incentive for overfatigue in leisure hours.

In Ellis' opinion, active tuberculosis is a much more serious disease among the sheltered well-to-do than among the working classes, since the invasion, among the former, is due, not to unfavorable environment, but to naturally low resistance. A sanatorium, he believes, is more necessary in cases of naturally low resistance than in those of normal resistance which has been artificially lowered. Cases of lowered resistance, he says, are infrequent among the working classes, but in these cases the value of home treatment is much more dubious.

The Plan of the State Department of Health for More Tuberculosis Hospitals. Dr. E. R. Kelley. *Boston Med. and Surg. Jour.*, 1916, CXXV, No. 15.

As there is now not adequate hospital provision for tuberculous persons in the state of Massachusetts, a bill introduced in the legislature proposes to place the establishment of tuberculosis hospitals upon the county governments. One of the chief reasons for this policy is the well-established fact that the people of any community are more inclined to take an active interest in an institution if it is their own and represents their own effort, energy, and direct investment of money, and if their local officials are responsible for its success, than is the case if the institution is one maintained by the state.

The Work of the Antituberculosis Dispensary of Venice (L'opera del dispensario antitubercolare a Venezia). *Attualita medica*, Milano, 1916, V, No. 10.

In 1909 the city of Venice appropriated 50,000 francs, which the late Dr. Missana had left the city, to the establishment of an antituberculosis dispensary. The institution, consisting of a small building with a waiting room, an examination room, and a small museum, was opened on January 1, 1913. It stands under the direction of the Venetian Society for the Prevention of Tuberculosis. The work is carried on by a physician, a chief nurse, and a few

public-spirited ladies. It consists in educating the people on the infectious nature of the disease, in persuading tuberculous persons to go to a hospital, and in an extensive disinfection service in habitations with tuberculous patients. In 1914, 150 families received aid from the dispensary; 22,400 liters of milk and 40,000 eggs were distributed among needy people.

The Work of Construction of the Tuberculosis Hospital at Garbagnati (I lavori di costruzione del Tubercolario di Garbagnati). *Attualita medica*, Milano, 1916, V, No. 10.

The city of Milan is erecting a large hospital for tuberculous people at Garbagnate. A considerable number of buildings, all on the two-story plan, are almost finished. The war has greatly delayed the work and it may take still some years until this magnificent hospital will be completed.

The Italian Hospital in Lugano, Switzerland. Dr. P. Pini. *Attualita medica*, Milano, 1916, V, No. 10.

This hospital owes its existence to the energy and ceaseless efforts of Dr. Pietro Capelli. When he came to Lugano, about fifteen years ago, he found there a large colony of his countrymen, few of whom were wealthy. There was great need of a hospital for Italian residents. Dr. Capelli at once went to work; he aroused the patriotic spirit of his countrymen, contributed largely himself, and in a short time he was able to erect the present hospital, of which he became the director. Modest in its exterior, it combines all the improvements of modern hygiene. It is a two-story structure and has ten sick rooms of three beds each, an operating room, a pharmacy, laboratories, etc.

Dr. Capelli was offered lucrative positions at other hospitals, but he preferred to stay with the institution which he had founded and which needed his labor and devotion. But his life was soon to be cut short. When Italy entered the great war, Dr. Capelli at once offered his professional services to his country and was mortally wounded in one of the battles on the Austrian front. His work will endure in the hospital which he so unselfishly founded. No man can wish for a more durable monument.

Paid Service in Hospitals—Its Advantages Over the Present Free System. M. Schulman, M. D. *New York Med. Jour.*, 1916, CV, No. 3.

Schulman says that not the laity only, but many physicians, fail to realize the difference between modern medicine and the medicine of one or two generations ago. It is seldom possible for any one doctor to give the patient the benefit of good, modern medical care without the cooperation of one or more specialists. The poor receive the benefit of such cooperative team-work in hospitals and, to some extent, in dispensaries. The rich can pay for any number of specialists. The middle class, however, can neither benefit by the charity of hospitals and dispensaries nor pay for the services of expensive specialists. There is no reason, however, in Schulman's opinion, for the continuance of this condition. Groups of physicians and surgeons may cooperate to render better service; or dispensaries and hospitals may take paying patients for moderate fees. Schulman gives preference to the latter method, the hospital being more economical and better able to command the respect of patients. The pay service of a hospital or dispensary should be manned by salaried physicians, and the number of patients should not be allowed

to exceed an established maximum, lest the work become hurried. This would constitute an advantage, from the patient's point of view, over the private cooperative group, in which the income of the cooperating physicians is directly proportionate to the total amount of fees received by the office. Such physicians, no matter how conscientious they may be, will sometimes be suspected by their patients of "slighting" cases. Schulman admits that such institutions will draw patients away from private practitioners, but doctors will be required to man the institutions in proportion to the number of patients thus attracted away to them, and hence the loss of fees from private patients will be compensated by salaries from the new institutions. In addition, the opportunity to do good work will be greatly increased.

Group Study—A Plea for Medical Cooperation in Hospitals. Fayette Watt Birtch, M. D. *Interstate Med. Jour.* 1916, XXIV, No. 1.

The diagnostic section of St. Luke's Hospital Clinical Club, San Francisco, consists of a group of twelve men interested in different fields of medicine, organized to investigate referred cases, systematically and collectively, and to forward a diagnostic report on the return of the patient. Birtch emphasizes the difference between this work and that of the diagnostic section at the Massachusetts General Hospital and that of the Mayo Clinic. In these clinics, he says, the patient is examined by a clinician and then referred to others for reports according to indications. This means the omission of routine examinations in departments whose specialties may not, to the clinician, appear to be involved. Birtch believes that these obscure pathological findings in the unexplored fields may be overlooked.

By the St. Luke's plan, each member of the diagnostic team makes an independent examination and a written report of the findings. At noon each day the team meets for discussion of the cases. If any case is not cleared up, further investigation follows, and new findings are reported and discussed next day, this procedure being repeated until some conclusion is reached, when findings and recommendations for treatment are mailed to the patient's physician. The case is regarded as belonging to the attending physician, and he is invited to be present at all the meetings of the diagnostic team.

The charges are based on the patient's income. The rate is \$35 for each \$100 monthly income.

Birtch believes that the plan should be practicable in all well-equipped hospitals with 100 beds or more.

Labor-Saving Devices in Hospital Equipment. Edward F. Stevens. *Trained Nurse and Hosp. Rev.*, 1917, LVIII, No. 1.

Stevens recommends using the brains to save the hands by the use of labor-saving devices, such as mechanical dishwashers in serving kitchens, as well as in main kitchens; simplification of all equipment; elimination of all unnecessary projecting finish; construction of floors requiring a minimum amount of attention; simpler systems of nurses' and interns' calls, and nurses' clinical records; movable tray racks, with ball-bearing wheels, lessening the work of the nurse by making it possible to wheel the loaded tray to the ward.

In the small hospital the dish sterilizer built with the steam table serves every purpose and economizes space. In every sick room there should be a blanket warmer, accessible to the nurses. This necessary adjunct is too often

omitted in many of our modern hospitals. The proper disposal of soiled linen is a much-discussed question. It is undoubtedly easier for the nurse or maid to throw the soiled linen down a chute than to put it into a bag; but unless the chute is hygienically built, great danger is encountered of fouling a dark chute and causing unpleasant odors, and possibly spreading disease.

If we must have a clothes chute, then have a real one, with water- and gas-tight doors, glass enameled inside, with water connection for washing the entire interior. Then we may be reasonably sure of good, hygienic conditions.

The great benefit derived from having the patient in the open air has influenced the manufacturer of hospital beds in providing all sorts of casters and bed trucks for the moving of beds. The regular caster is all too small for moving the bed any distance. The large caster, unless provided with a brake, permits the bed in the ward to be pushed sideways too easily. The movable head and foot bed-truck is a cumbersome piece of furniture at best, and storage of same is sometimes troublesome.

The two-piece maternity delivery bed, which allows the adjustment of the stirrups and removal of the foot end of the bed when it is necessary to use instruments, is becoming more generally used in maternity hospitals, and is being made by several bed manufacturers.

The Royal Hospital for Indians of the City of Mexico (El Hospital Real de Indios de la Ciudad de Mexico). Dr. J. M. de la Fuente. *Memorias y Rev. Soc. Antonio Alzate*, Mexico, 1916, XXXIV, No. 3.

This is probably the oldest hospital on the American continent. It is quite likely that Cortez himself founded it a short time after the Conquest, for it had already existed for many years under the name of Hospital de Indios when Emperor Charles V, in 1541, issued a decree that hospitals for the Indians should be established in all the principal cities of Mexico. From that time on the institution was known as the Royal Hospital for Indians. It was a modest structure, partly built in wood, partly in adobe, and was situated on a large tract of land in the southeastern part of the city. With the exception of \$1,400, which Charles V bestowed upon the hospital from his private funds, the institution depended entirely on the charity of wealthy people. In 1726 a tax was placed upon all the Indians in Mexico in support of the hospital, but the sum collected did not exceed \$26,000. In 1721 the hospital was destroyed by fire. The king of Spain made a donation of \$20,000, and in 1725 a new building was erected at an expense of \$39,787. In 1770, by order of the king, a medical school was established in connection with the hospital. Classes in dissection, anatomy, and physiology were opened on February 3 of the same year. Before this time dissections had been made in Mexico only privately by physicians and students. All these innovations were due to the efforts of Dr. Antonio de Aroyo. After his death the institution declined, especially during the stormy years of the early part of the nineteenth century. In 1822 the government of Mexico closed the hospital permanently and converted its buildings into military barracks.

Organization of the Hospital Pharmacy in Stettin (Organization der Krankenhausapotheke zu Stettin). Dr. L. Derlin. *Ztschr. f. Krankenanstalten*, Leipzig, 1916, XII, No. 43.

The city of Stettin has established a common pharmacy for all its hospitals. It is managed by a chief druggist

(*Oberapotheker*) and two assistant druggists (*Hilfsapotheker*). The chief druggist is a public official and is entitled to a pension when he reaches the required age. The two assistants become pensionable after they have continuously served for twelve years. All prescriptions are filled in the forenoon and the medicines carried by automobile to the various hospitals. Special records are kept for the testing of drugs, for urine analysis, and for the examination of milk used in the various hospitals.

The Establishment of Barracks for Infectious Diseases in Institutions for Mental Diseases (*Over de inrichting van barakken voor besmettelijke ziekten in inrichtingen voor geestesziekten*). Dr. G. C. van Walsem. *Ziekenhuis*, Amsterdam, 1916, VII, No. 12.

The author studied the conditions in the hospitals for the insane in Holland with regard to infectious diseases. Most of these institutions have barracks for the isolation of such patients. The diseases for which isolation was necessary were chiefly typhoid, scarlet fever, erysipelas, and dysentery. The author believes in strict isolation of all patients with infectious diseases and of all bacillus carriers in separate pavilions.

Making Use of Woman as a Nurse in Time of War (*De l'utilisation de la femme comme infirmière en temps de guerre*). Dr. C. Fromaget. *Jour. de méd. de Bordeaux*, 1916, LXXXVII, No. 7.

When the war broke out it was necessary to increase the number of nurses in the various hospitals at once. In February, 1915, a nurses' school was established in Bordeaux and the course was opened with more than 500 pupils, but the number of trained nurses is still insufficient.

Woman, the author says, is especially adapted to nursing. Man is only exceptionally a first-class nurse, while woman is a born nurse. But she must possess the necessary physical and moral qualifications. Nursing is hard work and only a strong and perfectly healthy woman can do her full duty. The moral qualities are not less important: A nurse must be devoted to her work; she must be obedient; she must be discreet; she must be calm and composed; nervous women have no place in the sick room.

The Treatment of Venereal Diseases in General Hospitals of New York State Outside of New York City. Joseph J. Weber. *Social Hygiene*, 1917, III, No. 1.

The Committee on Mental Hygiene of the New York State Charities Aid Association desired to know what part general hospitals are playing in combating venereal diseases, particularly syphilis, since this is the most frequent cause of insanity among patients admitted to state hospitals for the insane. The Committee on Hospitals of the association therefore undertook an investigation of the matter. A questionnaire was sent to 107 general hospitals throughout the state, of which 42 responded. Of these 42, only 19 take free syphilitic patients of both sexes; only 21 or 22 take pay patients; only 17 give literature and instruction to patients regarding the danger of contagion; only 4 take any steps to see that treatment and follow-up service are continued after the patient leaves the hospital; only 16 reported on the number of patients treated for syphilis last year (total, 228 cases); only 9 furnish salvarsan free; only 8 are equipped for Wassermann tests, and only one requires a negative Wassermann before discharging a patient. Weber remarks that these findings show that the hospitals (a) apparently do not appreciate

the significance of the venereal disease problem; (b) in many cases provide no facilities; (c) fail to give sufficiently thoroughgoing and effective treatment; (d) neglect follow-up work; and (e) make inadequate records. He asks if, on this showing, a systematic attempt should not be made to induce general hospitals to give more extensive and thoroughgoing treatment of venereal diseases, especially where dispensaries do not or cannot meet the needs.

The Hospital and Medical Education. Dr. C. R. Holmes. *Lancet-Clinic*, Cincinnati, 1916, CXVI, No. 13.

To render the best service municipal hospitals must not only care for the sick, but also aid in broadening our knowledge of how to combat and prevent disease; they must become teaching hospitals. For this purpose municipal hospitals must be brought to their highest efficiency. Permanency in the conduct of an institution is a prime prerequisite. The rotation system should be abolished everywhere. The selection of the medical staff for a hospital is a difficult task. A most successful private practitioner may be out of place in a hospital. In Europe, when a vacancy occurs in the head of a department in one of the important hospitals, men who have served for years as assistants in other great hospitals are selected to fill the position. In this country a physician or surgeon is often appointed to a position because he is the friend of some member of the hospital board, or on account of his political influence. Hospital boards will frequently appoint incompetent persons to these important positions for personal reasons, while in their private business they would select only the best qualified men. To obtain efficient service all persons performing work in a hospital should be properly paid for their services.

It is now coming to be an accepted fact that a medical college is in as much need of a hospital for the study of disease as it is of laboratories for scientific investigations. Dr. Councilman has well stated that a hospital must be regarded in a certain sense as a laboratory for the study of disease, and that the future and the highest development of medical education in this country is wrapped up with the control of hospitals.

A Preliminary Welfare Report of Cases Recently Discharged from the Watertown State Hospital. Frederick A. Causey, M. D. *Illinois Med. Jour.*, 1917, XXX, No. 1.

Out of one hundred discharged patients, belonging chiefly in the dementia precox, intoxication and manic-depressive groups, only five were reported as not improved. Causey believes that a report on the condition of all patients after discharge would be of value.

A Methodist hospital, which members of the Methodist denomination in Tennessee, Arkansas and Mississippi have for several years hoped to establish in Memphis, was made a certainty on February 1, when a campaign for a building fund of \$150,000 was closed with subscriptions amounting to \$175,000. Architect John Gaisford, of Memphis, has plans for the new hospital already under way, and it is expected that construction work will be started at an early date. Mr. J. H. Sherard, of Sherard, Miss., is president of the board appointed to establish and manage the institution. Rev. H. M. Ellis, of Memphis, as field secretary, has been very active in promoting the movement.

Dr. William Mabon, an alienist of note, and for the last ten years superintendent of the Manhattan State Hospital, New York city, died in New York, February 9, of pneumonia.



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The Teaching of Home Nursing and First Aid¹

BY ISABEL M. STEWART, A. M., Teachers College, Columbia University.

I am using this term because there seems to be no better one. Like "home" carpentering and "home" dressmaking, "home" nursing is applied to the work of the amateur as distinguished from that of the professional or expert. The term "home care of the sick" is preferred by many, but this narrows the subject down to the consideration of sickness only, while "nursing" in its original and broadest sense means the care of the well and the prevention of illness quite as much as the care of the sick. According to Florence Nightingale, "the very elements of what constitutes good nursing" are as little understood for the well as for the sick. The same laws of health, or of nursing, for they are in reality the same, obtain among the well as the sick. The breaking of them produces only a less violent consequence among the former than among the latter. She called this art "health nursing" and insisted that it should be a part of every woman's education and that the dominant idea must be the conservation of health rather than the treatment of illness.

The problem before us is whether we agree with Florence Nightingale that systematic instruction in this kind of elementary nursing is either necessary or desirable. Whether we approve or not matters very little so far as the existence of such courses is concerned, because they are already being given in all kinds of schools, societies, and clubs in all parts of the country. In the bulletins on "Education for the Home," prepared by Dr. B. R. Andrews for the Bureau of Education in 1914, it is stated that out of 163 colleges giving instruction in home economics, 35 were giving distinct courses in home nursing and 10 in the care of children; 42 elementary schools were giving courses in home nursing and 37 in the care of children, and practically every one of the hundreds of high schools where the household arts are represented includes under this general title similar instruction. This is only a fraction of the courses being given through outside clubs and societies, and though the numbers of these are not known, there is every evidence that the demand is increasing rapidly.

Requests come from all kinds of groups, from school children and college students, campfire girls and boy scouts, Y. M. C. A.'s and Y. W. C. A.'s, factory girls and society women. Intelligent mothers who have been impressed by their hopeless ignorance and incompetence in the presence of some common household need; girls who

are expecting to be married and want to be prepared for the duties of family life; people going into social work and church work of various kinds, who want to be ordinarily intelligent (or intelligently ignorant, as one person puts it), when confronted with problems of sickness; boys and girls who are deeply interested and want to learn things that will be useful and helpful—all these and many others are clamoring for such instruction. Undoubtedly less admirable motives are sometimes found, particularly since the spread of the "war-nursing" craze of the last two years, but occasional evidences of abuse or perversion should not blind us to the real demand. In all such cases we have to consider and provide for the needs of the average person, not the exceptional person, in the common situations of life.

The suggestion of any kind of nursing course outside of the hospital is apt to meet with so much doubt and distrust that it may be better to consider here a few reasons, apart from the public demand, why it seems to be advisable to provide some such instruction.

We will all agree that in spite of the undoubted progress in the prevention and care of sickness, the average person is still ignorant of the commonest means for keeping people, especially children, well, or caring for them if sick. Such ignorance can be relieved only by a more comprehensive general education, which will distribute broadly the necessary facts, according to people's needs and capacities.

Then, too, in spite of the multiplication of hospitals, and the extension of visiting nurse services, there are still many families in which expert nursing care is an economic impossibility, and where more or less heavy responsibility may have to be borne by sisters, mothers, and other members of the family. This is especially necessary in long chronic illnesses, in convalescence, and in the minor diseases of childhood, even where there is no economic problem; on farms, in camps and rural settlements, where situations may arise at any time that require prompt and intelligent care if life is to be saved. Indeed, such emergencies may occur on the streets of crowded cities or in any home, without a physician or a nurse at hand. What here can we do to make human life safer? Is it better to trust to the specialists entirely, even though they are not always available; or is it better to give every man, woman, and child such information as he needs and can safely use?

We all agree on the desirability of giving the public sound teaching on hygiene and sanitation. We believe that good courses on physiology and on hygiene, and even on bacteriology, should be a part of every person's education. But where it comes to the borderline between health and disease, we always wonder whether the dangers are not greater than the possible gains. We remember the long struggle we have had to demonstrate to the public that expert nursing is as important as expert medical care in saving life and reducing suffering, and to convince them that devotion and intelligence alone are not sufficient guarantees of nursing ability and skill.

It is not astonishing that we should feel this way, because as a rule we as nurses deal with acute, serious illness, and with conditions where critical situations are apt to arise at any moment. But it is undoubtedly true that there are many kinds and degrees of illness which do not require expert nursing care, and many simple nursing measures which do not require extensive knowledge and skill to be used safely. A number of the things we do for patients are really household and sanitary measures rather than medical or nursing measures. They have been used

¹Read at the twenty-second annual convention of the National League for Nursing Education, New Orleans, La., May, 1916.

in households for generations and are used every day by all kinds of people. We have perfected them and standardized them, but that is no reason why they should be considered as sacred mysteries to be jealously cherished, like trade secrets.

It is encouraging to feel that we are getting free from this narrow guild spirit which used to be so common in the medical profession and which is not unknown in our own. It is being penetrated gradually by a broader social spirit which considers the common good first and foremost, and the prestige and advantage of the professional group as secondary. While our field is contracting on one side, it is expanding in many other directions. Just as medicine has standardized and passed over into our hands one after another of its time-honored functions—grudgingly sometimes, we will admit—so it seems to me we must be ready and willing to pass on into general currency any of the commoner measures that we have worked out which will prove serviceable and safe for other people to use. We have had to struggle so long to secure the knowledge which would enable us to administer our own duties safely that we should be particularly sympathetic with those who are feeling their way to a better understanding and a more skillful handling of their very necessary duties.

Many people fear that the opening up of such courses would tend to increase the numbers of half-skilled, so-called "practical" nurses who now impose on the public. I am inclined to think that the semitrained or untrained nurse whose prestige in the community depends on a small stock-in-trade of technical terms and "hospital" tricks will not be so much in demand if these simpler things, such as bed-making and temperature-taking, become matters of common knowledge. If any school child can apply a sling or a roller bandage, a first-aid certificate will not serve so easily as a passport to war hospitals. On the other hand, it has been proved that when people get a little insight into the difficulties and dangers that attend more advanced forms of treatment, and some appreciation of what real nursing skill involves, the respect for professional work is increased rather than diminished, and they are less likely to assume recklessly such responsibilities. There is no doubt that such courses, skillfully handled, will serve also to attract into the profession many high school and college women who would otherwise never think of this field of work.

Of course, every nurse is teaching "home nursing" whether she is aware of it or not. Every patient who leaves a hospital carries with her new standards of bed making and cleanliness and the administration of medicines and common treatments. Every mother who sees the visiting nurse or private nurse bathe her baby and prepare its food and who follows her directions in the necessary treatment and care is having a very practical course in "home nursing." The neighbors get it, too, with excellent and far-reaching results. Whether we like it or not, there we cannot escape our teaching function, which is part of the business of being a nurse. If we ignore or shelve it, some other person will step in to satisfy the demand.

In order to get various points of view on these matters, and to balance up my own observation and experience with that of others, I have gathered together the opinions of a number of representative teachers, physicians, nurses, and other citizens, which will be summarized in the discussion following. To begin with, practically every person consulted agrees that there is a distinct need for instruction in home nursing, first aid, and the care of children, and that some place should be found for it in the regular

scheme of education. One or two disapprove of home nursing unless nurses are to act as instructors, and one or two would confine such instruction to especially selected groups.

The general aim would be to meet every-day needs so far as health is concerned, in a practical and efficient way, to help people to act intelligently and promptly in emergencies that threaten life and death, and to develop a sense of social and civic responsibility for community health, and for the care of those who are ill. A few, mainly teachers, suggest that such courses should also help in preparing specially qualified girls to act as children's nurses, mothers' helpers or convalescent nurses. This vocational type, of course, will be discussed later, but in the meantime we will speak only of the education which would be suited to the general public.

It is assumed by those who are familiar with the school system that the teaching of hygiene will have been begun in the kindergarten and continued up to about the sixth grade in the form of incidental and informal teaching rather than through set text-books and exercises. By the time the child is 12 years of age he should have formed habits of personal cleanliness and care, and should know something of the essentials of home and community health. At the age of 13 or 14 many children will be helping at home in the care of younger brothers and sisters, and often will be depended on for much more responsible duties in cases of a mother's illness or special family emergencies. A few of those who replied feel that this condition of things is abnormal and altogether undesirable in the interests of free, unhampered childhood, and that the school curriculum should not seem to encourage the employment of children in such home labor any more than they would countenance factory labor for young children. Others say that the child of 13 or 14 has not yet reached the psychological stage where even an elementary knowledge of infant care and home nursing is of any interest or value to her, that we must wait till later adolescence when she will have a better basis both in experience and understanding to build on, and when she can apply her knowledge with less chance of injury to herself and others. It seems to be the consensus of opinion, however, that since the vast proportion of elementary school pupils never reach the high school, if they are to have any systematic instruction at all it will have to come before they graduate from the common school. Moreover, among our great foreign population particularly, the only way to reach the parents seems to be through the children, and the authority of the school helps to secure a readier hearing for the facts we wish to carry into the home. It is suggested that special classes (such as "little mothers' classes") might be held for those who really need this instruction early, leaving the regular instruction till high school age at least; but this would mean that only a small fraction of the school population would be benefited and these only girls who are actually in charge of small babies. Several who are familiar with the school situation say that it is perfectly possible to select a few essential things which can be grasped by seventh and eighth grade children, and to incorporate them in the regular course in hygiene, or in the course in domestic science (which, however, reaches only the girls). It is suggested by several that boys and girls should be taught separately, modifying the subject-matter to suit their special needs and interests. It is frequently insisted that whatever is taught should be given in a concrete and practical way, and that the pupils should actually carry out the things they are taught to do. Most feel that it is unwise at this stage to bring in much formal teaching

of physiology and anatomy, but such fundamental facts as are necessary to explain and emphasize the right methods of doing things can well be brought in incidentally. I have seen courses in infant hygiene arranged for seventh and eighth grade pupils which, with some modifications, would not seem out of place in a nursing or medical curriculum, and such courses are far more likely to be arranged by nurses and doctors than by school teachers.

Instead of formal topics, such as "Infant Feeding" and "Common Diseases and Disorders of Childhood," the school child should be considering some such concrete problem as "how to help in keeping the baby well in summer," or "how to help when there is sickness at home." The ordinary matters of bathing and dressing, and sleep, etc., both for the baby or the slightly ill person, might equally well be discussed when the regular hygiene lesson is taught. The making of a bed for a sick person, and keeping the room fresh and clean, the cooking of a few simple invalid foods, and the methods of making people comfortable in bed—these are not complicated or technical matters, and can well be grasped by seventh and eighth grade pupils. "The principles of asepsis" sounds alarming, but there is no reason why any intelligent child should not know the harm that comes from dirt in cuts and burns, and how to put on clean dressings and keep them on with simple dandages. There is no need to enter into lengthy discussions on diseases or treatments, but it is important that everyone should be made to feel the need of isolation and prompt care when certain symptoms appear, and that they should know where to go for advice and treatment. We can use the lessons of the tuberculosis campaign which was waged, not always wisely, to avoid the harrowing and morbid type of "health" teaching, while retaining the measures which bring effective results.

It seems to be the general opinion that in the elementary school this teaching will have to be handled largely by the grade teachers, since, even where school nurses are employed, it would be impossible to take their time from their more pressing duties. It is generally admitted that the grade teacher lacks specific information, that she rarely knows how to do the commonest of these things herself, and that the "talk" method usually employed in such subjects is not only useless, but often ends in a lack of respect for the subject and in serious misconceptions. The domestic science teacher (if there is one) is usually little better prepared in the technical side of the work, and speaks with no more authority, though she is far more likely to make the subject concrete and practical, because that is her way of teaching. Doctors or nurses often make the mistake of giving technical lectures instead of using the far more natural and effective method of discussion and demonstration. Their message comes with more weight, but they have not usually mastered the technic of teaching sufficiently to have it carry over. Sometimes the teacher and nurse work together very effectively, and this seems to be the most satisfactory method to use in these elementary courses, until teachers generally can learn these things as they are now learning the elements of agriculture and household science, or till the staff of school nurses is enlarged sufficiently to allow for regular teaching duties.

Toward the end of the high school period, when the girl has covered some elementary work in science and has reached a stage at which she may safely be entrusted with wider knowledge and more responsibility, the consensus of opinion is that a second course should be given which would be based on good, sound physiology, with some knowledge of bacteriology, sanitation, and dietetics.

Whether this course is called "Home Care of the Sick" or "Home Economics" or "Applied Biology" does not matter so much; but it is important that the information given should be soundly scientific, and that any procedures taught should be actually carried out in as careful and thorough a manner as possible. Such a course might include any of the more elementary nursing procedures that are usually taught to probationers in their first few weeks; the planning, furnishing, and care of the sick room, the making of a bed, devices for comfort, bathing and attention to ordinary physical needs, the giving of medicines, and common treatments, such as a simple enema and a mustard plaster, and cold and hot applications, the observation of important symptoms, and first aid treatment in fractures, sprains, cuts, burns, and common injuries. The purely theoretical course is inadequate here, as it would be in drawing or music or domestic science. The purely practical course which teaches only the *ways* of doing things is equally futile, and perhaps more dangerous because it is so easy to learn the trick of doing things without learning how and why they are to be used.

The primary object, however, is to make the pupil understand and appreciate the whole problem of sickness, not only as it affects her and her home, but as it affects the community state. This is the time to show her the results of ignorance and quackery and to give her sound facts regarding the various causes which produce ill health, and the measures which have proven most effective in safeguarding human life. All of this can be made concrete and dramatic, supplemented by actual studies of conditions in her own community. If the much-despised subject of sex hygiene is to be taught, there is no place where it can be brought in more naturally than in such a course as this; but the really general prejudice of parents against such teaching has to be considered.

The care of normal children can be included as a branch of home nursing and first aid, or be given separately. It would, of course, take up the physical requirements of the child, the surroundings and routine daily care, clothing, feeding, sleep, exercise, etc., and the management and training of young children. They should be familiar with the appearance and behavior of a normal, healthy child, and know the symptoms which indicate a departure from normal, and common measures to employ in slight or sudden illness.

Finally, any course of this kind given to high school girls should give them a clear idea of the difference between amateur and professional nursing, and the modern developments of both medical and nursing work. I find that they are much impressed by a sketch of the history of nursing and by the always thrilling story of Florence Nightingale. I usually take them to visit a hospital and point out the elaborate precautions that have to be taken and the complicated services employed in caring for sick people. This serves two purposes: it awes them and impresses them deeply with the highly technical nature of a real nurse's work, and it also shows them the vocational possibilities in nursing in a concrete and usually attractive way. I have never taken a group of girls to a hospital without having a number of confidences about such secret ambitions on the way home. It must be remembered that girls of this age are highly impressionable and extremely susceptible to "horrors," and that anything that is morbid or sensational should be strictly avoided. Health rather than sickness should be emphasized. This is one very general objection to the teaching of doctors, and sometimes nurses, that they get carried away by the enthusiasm of their classes and indulge their thirst for morbid details

far beyond the margin of safety. Another rather strange comment which I have heard of the teaching of nurses, particularly in infant hygiene, is that they are inclined to be sentimental and do not tie their teaching up directly to the home life of the pupil. I could only explain this by assuming that the nurse was doing her best to follow what she thought was the regular class-room method.

Poor teaching, an unwise selection of subject-matter, a superficial or purely academic presentation, or, on the other hand, a course that is merely hand work and nothing else—these are mentioned as the main dangers and difficulties to be avoided. Bungling work would upset confidence in such a subject and it would be speedily replaced by some other course. From our own point of view the greatest danger is that of inaccuracies and misconceptions creeping in, and the possibility of students assuming responsibilities which they are not competent to perform. This is more likely to occur where the teacher is not a graduate nurse. Students of such courses have told me that they studied out of Maxwell and Pope and could pass a complete examination on it, also that they had taken up quite fully the nursing of typhoid fever or pneumonia and the preparation of a private house for operations. It is quite possible to teach any bright class all that is contained in the average nursing text-book, but it is not safe or practicable, because the pupil has no background of experience into which she can fit her facts, and she is not prepared to give the necessary time for observation and practice under supervision, which alone would render her competent to apply her knowledge. On the other hand, there are certain serious conditions which require immediate action if they are to be helped at all, and rather than teach pupils first aid by rule, I feel that it is safer to explain the condition that is present as simply, but as clearly as possible, and to take the risk of amateur assistance rather than to leave a person absolutely helpless in the absence of a physician. The justification for teaching early care in fractures, hemorrhage, shock, and poisoning, etc., is that lives are actually saved, in spite of some inevitable bungling. It is a choice of two evils. The problem of the normal or college course in home nursing, first aid, and the care of children is very similar to that of the high school, except that here we can usually depend on a wider experience, greater maturity, and a sounder scientific basis. College women are not entirely free, however, from many of the traditional superstitions that affect other people, and they often need, as well, the most practical and elementary kind of instruction, with extensive reviews and applications of physiology, bacteriology, and hygiene. One of the most serious charges against the education of the present age is that a girl may run the whole gamut of the elementary and secondary schools, even normal school and college, without knowing anything of physiology and with no practical knowledge of hygiene.

I believe that a good course in physiology should be required of all those who take the course in home nursing in high school, normal, or college. If possible, courses in hygiene and sanitation, in bacteriology and nutrition should also precede this work. This does not mean that this course is to be advanced, but it does give it a scientific basis, which helps to command respect and makes it safer and of more value. While the ground covered need not be essentially different from what is given in the high school, the college course should go further along social and economic lines, considering the history of nursing as a social movement, the advances of modern medicine, and all the newer preventive and educational movements connected with infant welfare, and the conservation of human

life. Such women should be valuable recruits in extending and advancing the work of hospitals and dispensaries, visiting nurse associations, and nursing education. Many of them could be interested in nursing as a profession, and they will at least know what such work represents.

These three age groups—elementary school, high school, and college—would cover the main types to be considered. Of course, every class is different, and subject-matter and method will both have to be adapted to meet the needs of individual groups.

Desirable as it might be to secure the cooperation of hospitals and dispensaries and day nurseries, etc., in giving the practical side of such courses, it is rarely possible because groups are fairly large and schedules are more or less rigid. The work will have to be done largely in the school or college building, with a simple equipment for demonstration, or, if at all possible, a well-equipped laboratory where each member of the class can carry out each procedure. The cost of such an equipment will depend on the number of students in the class and the method employed. It might range all the way from \$50 to \$300. The lecture and demonstration can be carried on with a class up to about 40 members, but for practice the number should not exceed 12 to 16, or at most 20. For demonstrations it is best to secure a "live" patient or subject, but a large doll can be used fairly satisfactorily for many procedures. Students usually use each other for subjects as far as possible, though this has its disadvantages because so much time is likely to be wasted. A two-hour period is almost necessary, and in many cases a three-hour period is not too long. Fifteen such periods constitute a fair time to devote to a course in home nursing and first aid.

It is not necessary to repeat procedures here to the point of high proficiency, since the purpose is more to enable the pupil to grasp the idea of the thing and to apply the principles taught rather than to develop skill. A simple text-book on home nursing, such as that which is published under the auspices of the Red Cross, is helpful if the teacher is inexperienced, but a more satisfactory way is to assign readings from a variety of sources and have pupils take notes on the nursing procedures. Frequent quizzes are needed to clear up misconceptions and fasten important facts in mind. It is well to have reviews of the practice work from time to time during the course. If the pupil is to keep her head in emergencies and carry out the necessary measures promptly, she will need to have some practice in responding quickly to varied situations. This has to be done altogether by "make-believe," but it is possible to reproduce some situations fairly well in the class room if one has some dramatic instinct to fall back upon.

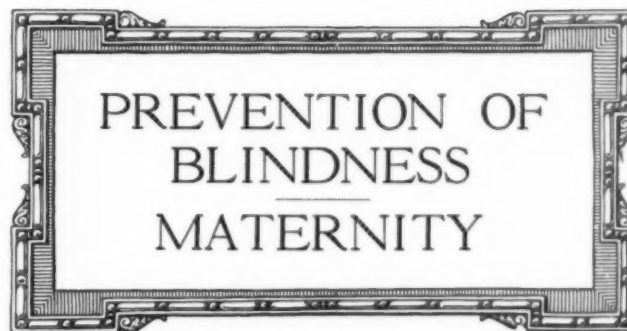
The question of who should teach these courses cannot be settled arbitrarily, so much depends on where the course is given and the people who are available. It is generally recommended that physicians should teach first aid, since this is a form of amateur medical practice. Courses in the care of children are given by domestic science teachers, by physicians and nurses. I would be inclined to say that for very elementary courses the teacher who has had special instruction in the hygiene and care of children could quite safely teach the subject, her work being supplemented perhaps by one or two talks by the school nurse. The high school course and the college course demand a wider knowledge and greater skill, and, on the whole, would be more satisfactorily handled by a woman physician or a nurse. Home nursing I would consider a purely nursing question, and ordinary first aid can very well be included in such a course. If there is a school nurse or a resident

nurse in a school or college dormitory, she would seem to be the logical person to teach the subject. But in spite of greater interest, larger experience and skill, and the fact that she should be more closely in touch with all the latest methods and theories in this special field, the teaching of either doctor or nurse is not likely to be acceptable to school or college people unless they can come into line and follow the accepted principles of good teaching. There is no doubt at all that if we had enough trained teachers ready, we could go to school boards everywhere and ask to have such courses as these introduced into the curriculum and given by trained nurse teachers. The schools are ready for such courses, but they need the advice of some authoritative body to say how they should be developed. Some tragic mistakes have already been made, because no one was interested enough or wise enough to get in the right word at the right time.

Vocational courses in nursing have been started in several schools, with the idea of training convalescent nurses, nurse maids, or attendants. Some of them have assumed alarming features, and at best they have been futile and wasteful attempts so far as any serviceable training is concerned. We have worked so long at the business of training nurses, and our principles are firmly enough established by this time for us to approach even education boards and a question like this with some assurance. If attendants or convalescent nurses are to be really trained, they must have a practice or training ground, and the school cannot supply anything equivalent to a hospital or day nursery or convalescent home, which can be used as a laboratory. It is possible that some affiliation between these institutions and schools might be worked out, but it is perfectly plain that the plan must be formulated with great care and that school men cannot do it alone.

It seems to be clear that this whole situation needs careful consideration and that we as nurses must agree upon some definite policy which can be recommended to the many who inquire. Our recent affiliation with the National Educational Association gives us an excellent opportunity to get before that influential body our point of view so far as it concerns the school. Would it not be wise to have a representative committee from our three national organizations, working on this question; and to have it confer with representatives of other bodies who are most vitally interested, and make a report to us next year? Outlines of the various types of courses that might be recommended could also be worked out. I would remind those who are teaching such courses that an excellent outline of home nursing was prepared some years ago by a special committee on home nursing, and published in the League report.

A tuberculosis nurse, in beginning work, must arm herself with two characteristics for daily use—hopefulness and patience. Without the former she will find her work too depressing; without the latter hope will soon die, for there is so little of visible success except as a survey is taken covering a period of months or years. In entering the tuberculosis field there is one point which she must bear constantly in mind: that, although she deals largely with the individual, her problem is a community problem. Though she cheers and nurses the patient, though she procures aid for his destitute family, though she preaches far and wide the doctrines of healthful living, she will have barely touched the problem unless she prevents the spread of infection.—Mary S. Gardner, "Public Health Nursing."



Conducted by CAROLYN CONANT VAN BLARCOM, R. N.,
Secretary of the Illinois Society for the Prevention of Blindness;
Chairman of Committee on Social Hygiene of the
American Nurses' Association.

Please address items of news and inquiries regarding Prevention of Blindness—Maternity to the editor of this department, 30 North Michigan Boulevard, Chicago.

The Prevention of Blindness in Ohio¹

BY HELENA R. STEWART, R. N., State Supervising Nurse, Division of Public Health Education and Tuberculosis, Ohio State Board of Health, Columbus, Ohio.

The Ohio law for the prevention of blindness from inflammation of the eyes of the newborn was passed by the legislature on May 19, 1915. Under the ninety-day referendum provision of the state constitution, the act did not become effective until Aug. 20, 1915.

The Survey, Sept. 4, 1915, said, commenting on this law: "One of the most advanced measures ever enacted in the United States for the prevention of blindness was enacted by the Eighty-first General Assembly of Ohio." Credit for the passage of the law is due to the Ohio Commission for the Blind. It prepared the bill on the basis of the model drafted by the American Medical Association, and it became a law with very slight amendments.

Previous efforts on the part of the state to deal with the general phases of blindness may be briefly summarized. In 1892 a law was passed requiring every midwife, nurse or relative in charge of an infant less than 10 days old to report in writing within six hours to the family physician or local health officer any inflamed, swollen or unnatural discharge of the eyes. A penalty of fine or imprisonment, or both, was provided. On May 9, 1908, the Ohio Commission for the Blind was created by the legislature to "act as a bureau of information and industrial aid, the object of which shall be to assist the blind in finding employment and to teach them industries which may be followed in their homes" and "to make inquiries concerning the cause of blindness to ascertain what portion of such cases are preventable and to cooperate with the State Board of Health in the adoption and enforcement of proper preventive measures."

Distribution of prophylactic outfits to physicians and midwives was begun on Sept. 15, 1910, by the State Board of Health. Trachoma was made a reportable disease by a regulation of the State Board of Health on March 2, 1911, and a similar ruling was made concerning ophthalmia neonatorum on Jan. 22, 1913.

The first section of the law under consideration defines inflammation of the eyes of the newborn as "any inflammation, swelling or redness in either one or both eyes of any infant, either apart from or together with any unnatural discharge from the eye or eyes of such infant, independent of the nature of the infection, if any, occur-

¹Read at the Fourth Annual Convention National Organization for Public Health Nursing, New Orleans, La., May 2, 1916.

ring any time within two weeks after the birth of such infant." The second section makes it the duty of any physician, midwife, nurse, maternity home or hospital of any nature to report to the local health officer such condition within six hours after its discovery. The local health officer has certain responsibilities placed upon him by the next section, which requires that he investigate each case that may come to his attention; that he report all cases and results of investigation to the State Board of Health; and that he conform to the rules and regulations adopted by the State Board of Health. Section 4 makes it the duty of the State Board of Health to enforce the provisions of the act; to adopt rules and regulations; to provide for the free distribution of prophylactic; to provide daily inspection and gratuitous treatment when necessary; to publish information concerning the dangers of inflammation of the eyes of the newborn; to furnish copies of the law to physicians and midwives; to keep a proper record of all cases reported to it and to report all violations of the law to the State Medical Board and to the local police or county prosecutor. Section 5 requires the use of some prophylactic by the physician, midwife or other person, where the birth occurs in a maternity home, hospital, public or charitable institution, while Section 6 makes it mandatory upon midwives to use, in every case of childbirth which they attend, such prophylactic as may be required by the State Board of Health. Violation of the provisions of the law are punishable by a fine of not less than \$50 nor more than \$100 for the first offense, and for each subsequent offense by a fine of not less than \$100 nor more than \$300.

The sum of \$5,000 a year was appropriated for two years to the State Board of Health to be used in the enforcement of the law. All necessary expenses which are incurred in the prosecution of a case for the violation of the law are paid for by the State Board of Health out of this appropriation. All fines recovered in such prosecutions are paid into the state treasury for the use of the State Board of Health in the prevention of blindness work.

It is further provided that a fee of 50 cents is to be paid to any physician, midwife, nurse, maternity home, or hospital for reporting in prescribed form each case coming to their notice of inflammation as defined by the law to the local health officer.

Responsibility for the enforcement of the law was placed by the State Board of Health with the Division of Public Health Education and Tuberculosis because of the fact that the public health nursing service of the department was in this division. The first step taken was to supply every health officer, of whom there are 2,150, with the necessary blanks and with the rules and regulations adopted by the State Board of Health prescribing the course to be followed by the health officer in submitting to the division the results of his investigation. In addition, letters of instruction were sent them briefly explaining the necessity for prompt and thorough investigations. These letters stated clearly that the health officer is expected to telephone or telegraph immediately, at the expense of the state, to the State Department of Health if his investigations indicate a necessity for nursing care for the baby, or the need of his securing additional instructions. A supply of special envelopes was provided each health officer, which were addressed to the Division of Public Health Education, and marked "Prevention of Blindness." These serve readily to identify reports of cases and investigations in the mail, and call for immediate attention as soon as received at the offices of the depart-

ment. A copy of the law, together with a book of uniform report blanks and instructions for use in submitting required reports, was also sent to the 8,000 physicians, 3,000 nurses, 547 midwives, and several hundred maternity homes and hospitals.

In order to provide for the gratuitous distribution of a scientific prophylactic for inflammation of the eyes of the newborn, outfits containing tubes of 1-percent solution of silver nitrate, together with droppers and directions for use, are placed at the distributing stations of the Division of Laboratories. There are 291 such stations with at least one in each county. Outfits can also be obtained direct from the Division of Laboratories. On account of the expense it was found to be impossible to send these outfits direct to each physician in the state. We did supply every midwife known to us outside the large cities. We also sent a letter to each midwife, explaining the requirement of the use of the 1-percent solution of silver nitrate as a prophylactic.

To provide gratuitous treatment to any case, when necessary, the State Board of Health has employed a public health nurse, whose duty it is to go to such case upon the request of the local health officer. In addition, the Ohio Commission for the Blind employs six nurses who are available for such duty. Local nursing services are obtainable by the health officers in 47 cities and 9 counties where some 365 public health nurses are at work. We have been able to send or supply a nurse in answer to every call which has come to us up to the present time. As an illustration of the amount of work being done, the public health nurse in the State Department of Health began her nursing work on November 20, 1915, and up to April 1, 1916, she had attended 14 cases where her services were actually needed. In 6 of these cases she placed the mother and baby in hospitals for treatment; in 2 cases she placed the baby in a hospital, and in 6 cases she gave home nursing care covering from 2 to 7 days each.

In the period from August 20, 1915, to March 31, 1916, there have been 576 cases reported to the State Department of Health. The case reports by months are as follows:

August (11 days).....	17 cases	January	108 cases
September	26 cases	February	96 cases
October	42 cases	March	109 cases
November	80 cases		
December	98 cases	Total	576 cases

These reports have been received from 63 of the total 88 counties in Ohio. These 63 counties contain practically four-fifths of the population of the state. The 25 counties from which no reports have been received as yet are in almost every instance those in which there are no large cities; where proper medical attendance is hard to secure, and where there is no public health nursing service.

It takes much time and repeated effort to secure from the local health officer a final investigation of each case reported. But at the end of March we had on file 351 completed records. A completed record means one in which no essential item of information is missing. Nursing care has been supplied in 252 of the total 351 cases reported. Of these 351 cases, 181 are male and 170 female infants. Only 19 of the total number are colored—8 male and 11 female. The ages of the babies at the time of reporting the inflammation range from 1 to 45 days, and may be classified as follows:

	Under 4 days	4 to 15 days	15 days and over	Not known	Total
Female	44	92	26	8	170
Male	49	97	17	18	181
Total	93	189	43	26	351

The use of the prophylactic in the 351 cases is reported as follows:

	Used	Not used	Unknown	Total
Cases reported by physicians.....	141	40	15	196
Cases reported by midwives.....	95	5	1	101
Cases reported by nurses and others	34	12	8	54
Total	270	57	24	351

The indications of the causes of the reported inflammation of the eyes of the 351 infants under study are:

	Female	Male	Total
Reaction of prophylactic.....	47	57	104
Inflammation caused by micro-organisms..	99	102	201
Undetermined	25	21	46
Total	171	180	351

In ten cases the inflammation has been reported as resulting in partial blindness, no cases of total blindness being recorded.

CASE 1.—Illegitimate baby. The only care the mother received in childbirth was that given her by an imbecile sister. No prophylactic was used in the baby's eyes. The case was found by a physician when the child was 9 days old, and was then reported. Nurse and hospital care were secured, but the inflammation resulted in total blindness of the right eye and partial blindness of the left eye. Examination of a specimen showed the presence of gonococci.

CASE 2.—Midwife failed to use silver nitrate at birth and failed to report condition of inflammation. She claimed to have used boracic acid at birth. The result of the inflammation is total blindness in right eye and partial blindness in left eye. The facts in regard to this case were given to the county prosecuting attorney and the case is to be presented to the grand jury.

CASE 3.—Physician failed to use a prophylactic and failed to report the case until fourteen days after the beginning of the inflammation. No specimen was obtained. There is total blindness in one eye. The State Board of Health presented the facts in this case to the county prosecuting attorney. The physician was indicted by the grand jury and pleaded guilty. He was fined \$50 and costs, but the fine was suspended.

CASE 4.—Baby was born in large municipal hospital, and silver nitrate was used in the eyes at birth. After thirteen days an inflammation set in and was properly reported. The specimen showed the presence of gonococci. There is total blindness of the left eye from a perforation of the cornea.

CASE 5.—No prophylactic was used at birth. The physician in attendance reported an inflammation of the eyes when the baby was 7 days old. Not realizing any danger, the health officer (a physician) delayed the investigation and notification of the case to the State Board of Health. A nurse was immediately sent to the baby, but treatment was too late to prevent total blindness in the left eye and partial blindness in the right eye. The specimen showed the infection to be gonorrheal.

CASE 6.—The physician claimed to have used argyrol in the eyes of the baby at birth, but the nurse attending the case says that he did not, and that she called his attention to his failure to use a prophylactic. The physician failed to report the case and this was done later by the nurse, although there were two physicians treating the eyes. The specimen showed the presence of gonococci, and the infection resulted in total blindness of the left eye. The county prosecuting attorney was given the facts, but would only call the attention of the physicians to the necessity of reporting in the future. The local academy of medicine and the two physicians were notified that thereafter failure to report such a case would result in prosecution.

CASE 7.—The baby was 3 weeks old when the case was reported. It has been impossible to prove that the physician was treating or was aware of the inflammation while the baby was less than fourteen days old. A nurse was sent to the case and hospital treatment secured, but there is partial blindness in the left eye.

CASE 8.—No prophylactic was used at birth. Three physicians knew of the inflammation of the eyes and were advising treatment, but no report was sent to the health officer until a fourth physician was called, who reported immediately. A nurse was sent and the child taken to a

hospital, but there is partial blindness of the left eye. Examination showed presence of gonococci.

CASE 9.—A physician was in attendance at birth. No prophylactic was used. A discharge from the eyes was observed the day after birth, but the physician said it was due to jaundice. He did not submit a report to the health officer until infant was 9 days old. The health officer (a physician) failed to investigate the case, merely forwarding the original report to the State Department of Health two days after its receipt. A second physician was called for the case and he, after some delay, asked for assistance from the State Board of Health. When the state nurse arrived, the baby's eyes were in serious condition, and the baby was taken to a hospital. Specimen showed gonococci. Three physicians, one the health officer, are responsible for the neglect which resulted in partial blindness of the left eye.

CASE 10.—The infant was born in hospital, and a prophylactic was used at birth. Inflammation developed about the ninth day. The hospital did not report the case to the health officer. Against advice, the mother left the hospital with the child. Another physician was called, who reported the case at once. The child later received hospital care through the efforts of the state nurse. Slight partial blindness of the right eye resulted, however.

Some of the further facts which an examination of the 351 records reveal is that there have been 103 physicians, midwives, and nurses certified for the 50-cent fee. In 43 cases the baby was over 14 days old, and in 26 cases the age was not specified, either one of which situations makes it impossible for us to certify the person reporting the case for the legal fee. Again, there have only been 106 microscopic examinations made in the total of 351 cases. This indicates that the average physician does not yet see the value of a laboratory as an aid in arriving at his diagnosis.

We feel that in this attempt to prevent blindness from inflammation of the eyes of the newborn we have made only a beginning. It will take time and perhaps a few prosecutions to make some of the doctors see the necessity of reporting their cases immediately.

When it is considered that we have 2,150 local health officers to instruct, and that many of them are not educated along this line, we feel that they have done remarkably well in submitting their reports, in making their subsequent investigations, and in asking for nursing care for the babies reported to them. At present there is only one nurse on the staff of the State Board of Health to be on call for these emergency cases all over the state. The large cities look out for the cases in their own municipalities and in the smaller cities where there are public health nurses, they have responded to the call and have given nursing care and, in some instances, taken the mother and baby to a hospital.

Without discussing the differences between the life of a person with sight and one with blindness, we feel that if this law is the means of saving the sight of only one child, our efforts, measured in terms of dollars and cents, will have been worth while. It costs the state approximately \$10,000 to educate and maintain one blind dependent citizen. The appropriation for the work of prevention of blindness under this law is \$10,000 for two years. If one baby a year is saved from blindness by the operation of the machinery set up under this law, it means that the state has paid out its investment, with a profit of 100 percent, and that every additional child saved is that much added to the profit of the state account.

Construction work will be started this spring on a new home for the Boston Lying-in Hospital, estimated to cost \$300,000. The plans have been drawn by Architects Coolidge & Shattuck, of Boston.



Conducted by ALBERT WARREN FERRIS, A.M., M.D.
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Please address items of news and inquiries regarding The Modern Sanatorium to the editor of this department, Saratoga Springs, New York.

Obscurity of Disease a Spur to Success in Diagnosis

BY ALBERT WARREN FERRIS.

Recently there was founded in New York city an institution for diagnosis, a hospital into which patients shall be received to be studied till their diseases are understood and diagnosed, at which time presumably the greater number will be returned to their homes, or to their home hospitals, for treatment. Securing the keen scrutiny and differential criticism of the physicians on the staff of this institution will be like engaging the services of one or more consultants, but still better, for instruments of precision like the electrocardiograph, and the facilities of the chemical and physiological laboratories will also be available.

The usefulness of and perhaps the demand for such an institution is a natural result of increasing dismay at the early decay or even death of thousands who should be in the prime of life, efficient and vigorous; of the desire to prolong life, and life without the discomforts of a diseased condition; of the belief that sometimes the family doctor does not know exactly what is the matter with the patient.

A layman of mental poise and discrimination, whose observation is well worth attention, points our gaze to what she considers a serious fault in our practice of medicine today, asserting that when a person who complains of being ill consults a physician, if the ailment is easy of diagnosis, it awakens lively interest; whereas, if a definite diagnosis cannot be promptly made, there is a tendency on the part of the profession to feel no interest, show little attention, and to minimize or even ignore the symptoms, and leave the patient unrelieved and dissatisfied. This attitude, she says, may also be exhibited even in a hospital.

This is indeed a grave arraignment of the medical profession. I have mentioned the technical and perhaps ultra-scientific physician who is interested in his case only till he has fathomed the mystery of the existing lesion to such an extent as to be able to draw it on the blackboard with colored chalks, and then shows not only a vanishing interest, but even a distaste for further contact, and fails to prescribe anything remedial. We all know many medical men who read little medicine, in either books or periodicals, never take a post-graduate course, and utterly fail to keep abreast of medical progress to the smallest extent. Who is at fault?

The medical field is forever widening. It is matter for thankfulness that medicine is not "an exact science." It is not a matter of embalmed opinion. It is a wide-expanding, deep-delving, far-reaching, progressive, and ever-changing science, because of constant augmentation and accession of truth; and those who profess it must strain

every nerve to keep abreast of even one subdivision of the increasing mass of information.

The facts of malaria, not yet admitted in certain inland localities, though established in 1898 by Manson and Ross; the absolute facts of vaccination for smallpox, attacked by fatalistic medievalists to the complete astounding of those who know; the newer conceptions of that old scrap-basket, rheumatism; the new and generally accepted view of diabetes as a diminished functional capacity of the pancreatic islets, and its treatment as enunciated by Guelpa and set forth and elaborated by Allen; the physiology and pathology of the thyroid and the suprarenal and others of the "ductless" glands, and the modern uses of their derivatives; the detection of serious disturbance of the acid-base equilibrium of the body, known as acidosis; the relation of oral hygiene to general and local infections of the body, as, for example, arthritis—all these open up opportunities for more intelligent appreciation of conditions and new bases for daily practice of the healing art.

What shall we say of the physician who makes no physical examination, who uses neither the elementary thermometer nor the stethoscope, nor even the tongue-depressor; who does not analyze the urine; who prescribes for symptoms detailed in answer to unsystematized questions; who gives no dietetic directions? There are such persons, licensed to practice medicine, why ply their craft, guess at conditions, and order medicines. It is not only they at whom our critic justly carps, but also those who have no abiding, real interest in their work, though equipped and efficient.

The obscure case should be the one to excite deep concern; to stimulate insight; to challenge ability. Is the case one of neurasthenia or psychasthenia? Do phobias and dread fill the content of thought? What more satisfying to the practitioner than to "pluck from the memory a rooted sorrow, raze out the hidden troubles of the brain," and restore calm judgment by means of digestive and circulatory improvement, and perhaps psychoanalysis? Diet, exercise, and baths cause such rapid and permanent improvement in many neurasthenics that they should be very welcome patients in these days. Discovery of ptosis of viscera and its correction by means of a proper support or corset often exorcises forever the blue demons that formerly held their devilish sway. "It depends upon the liver," is still the proper answer to make to the old question, "Is life worth the living?" A marked reduction of animal proteids, the dropping of all meat and fish for a year or for all time, with sufficient intake of water and of bulky vegetables, has relieved many a patient who theretofore knew no greater enjoyment than to entertain that time-honored couple, nervous prostration and a trained nurse. A regular routine of simple exercises has emancipated many a patient from the slavery of indigestion and insomnia. Is it asking too much of the ordinary practitioner to cultivate and exercise the intelligence and insight necessary to a solution of the average obscure problem?

In all this matter, the greater duty and responsibility, because of the greater opportunity, rest upon the modern sanatorium. The chance for repeated and complete examinations of resident patients, the continual proximity under eye, the daily inspection and observation, the daily test of the medicinal efficiency, combine to give the greatest advantage in resolving the complex and unveiling the primarily mysterious. Still, is it not the duty of every practitioner to go as far with the same methods as may be necessary to reach a real diagnosis, and should he not, if too busy or too bored to give it genuine attention, refuse the case?

SOCIAL HYGIENE VENEREAL DISEASES

Conducted by WILLIAM F. SNOW, M. D.,
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Please address items of news and inquiries regarding Social Hygiene to the editor of this department, 105 West Fortieth street, New York City.

Dispensary Treatment for Venereal Diseases in Lakeside Hospital, Cleveland, Ohio

BY MARGUERITE TUPPER, Assistant Social Worker, Lakeside Hospital.

At the Lakeside Dispensary all cases of lues in patients over 3 years of age are referred to the dermatological clinic for continuance of specific treatment. All children under 3 are sent either to the children's clinic or to the babies' dispensary for treatment. The dermatological clinic treats all acute and chronic lues, excepting the nervous cases, and also all other skin diseases. In the neurological clinic are treated old tertiary stages of lues affecting the nervous system.

In 1914 the social service department began systematically to record and to follow up every case of lues attending the dermatological clinic. Within eight months the staff of clinicians was doubled and the clinic was opened six days instead of three. A social worker is now



Fig. 1. Male examining room in the dermatological clinic of Lakeside Hospital.

stationed in the clinic, to whom every luetic patient must report with his chart after he has received his treatment. She then checks up the patient's visit and tells him when to return. No "vacations" are given to patients without instructions being received from the doctor. Dr. Cole, who is in charge of the clinic, tries to send every case of primary or fresh secondary lues to the City Hospital for at least two weeks' hospital treatment. There the patient generally receives three injections of salvarsan and is rendered noncontagious for ordinary contact with the public. Within twenty-four hours the social worker

checks with the City Hospital upon these admissions. If the patient has not been admitted, a home call is made immediately and admission secured either through further persuasion or, that failing, through the efforts of the commissioner of health. The policy of the health department in these cases is to send a sanitary police officer, who threatens to placard the patient's door with a venereal disease poster. The City Hospital reports back to us the discharge of every luetic case which we have referred to them.

After the patient has passed the acutely infectious stage comes the long tug-of-war to impress upon him the necessity for continuing treatment and to reassure him in often repeated attacks of despair and anxiety. In dealing with these patients we keep three principles always in mind.

1. We assure the patient his confidence will not be violated. No diagnoses are given out without the patient's



Fig. 2. Male treatment room in the dermatological clinic of Lakeside Hospital.

signed order except to members of the medical profession, under ethical conditions, and when a report is justified in the interests of public health.

2. We arouse the patient's sense of responsibility to himself, to others whom he may have already exposed and to those whom he may expose unless he follows conscientiously and intelligently the doctor's instructions. We use a set of instructions, which are at present translated in five languages—English, German, Polish, Hungarian, and Italian—and we soon expect to add other languages, including Yiddish, Croatian, Servian, Roumania, and Greek. The social worker consults with the doctor about the necessity of every married patient and every patient whose disease is congenital, bringing in other members of the family for examination and, if necessary, for treatment. For patients who have exposed persons outside the immediate family we use the card originated, I believe, by the South Medical Clinic of the Massachusetts General Hospital. Persons presenting this card are entered by the social worker at the dermatological clinic instead of being referred to the general admission desk of the dispensary.

3. We try not only to help the patients to readjust their lives in relation to their present infection, but also to re-educate them along sex hygiene lines, so that when they shall be discharged as physically cured they may be better prepared to play their parts as normal members of society.

The occupation of every patient is recorded, and, if it is of a nature to expose the public, the patient is not allowed to resume it until in the doctor's opinion it is safe to do so. If after eight days' absence from the clinic the patient has not reported, a dispensary postal is mailed, asking him to return by a certain date, but with no clinic men-

tioned. In a few cases, in which stringent privacy is demanded, a personal letter is sent with a personal return address.

If three postals fail to get a response, a home call is made. If repeated calls fail, the case is referred to the health department for the attention of the sanitary police. Our health commissioner is giving us splendid help, and we try to call upon him only as a last resort in cases in which the prognosis is hopeful. Besides following the cases already referred to this clinic, the social worker sees that all patients having a positive or doubtful Wassermann reaction return to the dispensary.

Lakeside Dispensary makes a charge of \$5 for a dose of salvarsan. Whenever, in the social worker's opinion, this should be given free, no charge is made. In other cases the price is adjusted to the patient's pocketbook, by either receiving payments on the installment plan, or with the doctor's sanction, allowing the patient to exchange three days' labor in the hospital workshops for his medicine.

We are slowly educating our patients to ask for letters to other doctors or other clinics when leaving the city. We have had splendid cooperation from these clinics whenever we have had occasion to require it. In the case of smaller towns and rural communities the opportunities for treatment are very meager, and often we can only select at random a doctor's name from the medical directory.

As yet the professional prostitute has generally eluded dispensary treatment. We hope that, in cooperation with the judge of our municipal court, there will soon be instituted a system of parole, insuring medical treatment for prostitutes lasting at least three months. We also realize the need of and hope soon to start a pay evening clinic for the treatment of gonorrhea and lues.

Although there are many transients and mental defectives upon whom we can make no impression, and although it takes anywhere from two months to two years to train some individuals to take regular treatment, we feel that the follow-up work for luetics more than repays the department for the energies expended, when one considers the enormous gain not only to the patient, but to the public in the protection that proper treatment insures.

The Saving of Fats

Probably the most neglected art in the hospital culinary department is the rendering, clarifying, and saving of fats. It is generally considered that the greatest waste in the average large kitchen is in the disposal of fats. In view of the present high cost of meats, and particularly of fats, it will be well for the hospital superintendent to consider the methods of rendering and clarifying fats described in Bulletin 469, U. S. Department of Agriculture. These are as follows:

The fat is cut finely with an ordinary meat chopper or sausage grinder and is then heated in a double boiler until completely melted. The melted fat is then strained through a rather thick cloth (medium fine huckaback, for instance) to remove the finely divided bits of tissue. The advantage of this method is that since the material to be rendered is finely divided the fat separates readily from the inclosing tissue at a temperature very little above its melting point, and there is no danger of scorching it, as in the older open-kettle method. This is of importance, since recent information shows that fats overheated in rendering do not keep as well as those which have not been heated too high. Also there is no odor of scorched fat in the room during rendering. After the fat is rendered it should be carefully heated to make sure that it is free

from moisture, and sterilized. This method of rendering fat is entirely satisfactory when the quantity of fat to be rendered is fairly small. The difficulty of using it on a large scale would depend chiefly upon the labor and cost of grinding the fat.

Fats which have been saved when meats are cooked, or which have been salvaged in some other way, must usually be clarified—freed from objectionable odors, tastes, or colors—before being entirely satisfactory for culinary purposes. A common custom is to cook a slice of potato in the fat, and this may help if the fat is fairly satisfactory to start with. A fairly successful household method for clarifying fats is as follows: Melt the fat with at least an equal volume of water and heat for a short time at a moderate temperature, with occasional stirring. Let the mixture cool, remove the layer of fat, and scrape off any bits of meat and other material which may adhere to the under side. Rendering or clarifying fat with milk gives quite satisfactory results in modifying odors and flavors. The procedure is as follows: To 2 pounds of fat (finely chopped if unrendered) add one-half pint of milk (preferably sour). Heat the mixture in a double boiler until rendered or thoroughly melted, stir well, and strain through fairly thick cloth. When cold the fat forms a hard, clean layer, and any dark material adhering to the under side of the fat may be scraped off. Sour milk, being coagulated, is preferable to sweet milk, since the curd remains on the cloth through which the rendered mixture is strained and is thus more readily separated from the rendered fat, which has acquired some of the milk flavor and butter fat.

Undesirable odors and flavors can be decreased in intensity or removed, if not too pronounced, by heating the fats with a good grade of charcoal, and the method is applicable to fats which could not be satisfactorily treated by the method first spoken of. To each pound of chopped, unrendered fat add 12 pieces of clean, hardwood charcoal about the size of a walnut and render the fat in a double boiler, as described above. Allow the charcoal to remain in the melted fat for about two hours and stir the mixture occasionally. It is necessary to strain the fat through flannel or other closely woven cloth to remove all the fine particles of charcoal. Rancid odors, if not too pronounced, may be satisfactorily removed by this method. If the odor is very pronounced more charcoal is needed and the mixture requires longer heating. It is interesting to note that the characteristic yellow color of the beef fat may be removed and a white, odorless fat secured.

SPOKANE HOSPITAL BURNS

St. Luke's, Crowded With Patients, Is Almost Entirely Destroyed

St. Luke's Hospital, Spokane, Wash., housing 105 patients, almost the limit of its capacity, was reduced to ruins by a fire which broke out in the attic of the building about 6 p. m., January 21, at the time the evening meal was being served in the wards. By marked composure and fast work on the part of Miss Joanna Burns, the superintendent, her nurses, and others, all of the patients were safely removed to nearby homes, whence they were later taken to other hospitals. The city firemen arrived promptly, but were unable to stop the spread of the flames.

The building destroyed was valued at \$120,000. One wing of the structure was practically new, having been erected three years ago at a cost of \$70,000. Insurance amounting to \$50,000 was carried.

Arrangements have been made to reopen the institution in temporary quarters, and plans are already being drawn for a \$200,000 fireproof building, which the trustees expect to erect this spring.

Miss Ida Lusk, formerly of Bellevue Hospital, New York city, was appointed to the position of superintendent of the training school at the Allegheny General Hospital, Pittsburgh, Pa., in February, succeeding Miss A. L. Darling.

FOREIGN CORRESPONDENCE

War Hospital Notes

[Continued from February issue.]

A MOVABLE DISINFECTOR

A movable disinfector on a large scale has proved to be of great use, especially for the treatment of soldiers' blankets, in order to destroy vermin. It is on the principle of current steam at 212° F. without pressure, as worked out by Dr. J. C. Thresh some years ago. A solution of calcium chloride is used, which boils at 220° F. (=104° C.) and gives off steam at about 215° F. This is kept up for thirty-five minutes, after which a current of previously warmed air is passed in to dry the disinfected articles. The apparatus is carried on a motor lorry, driven by steam (instead of petrol), and consists of two large barrels, which can be used either together or separately, each having a capacity of 60 cubic feet, connected with the steam engine of the lorry. The power of this engine is diverted from locomotive to disinfectant action simply by cutting off the steam from the driving wheels and turning it into the jacket of the disinfector. It can, therefore, be brought into use directly it arrives at any spot where it is required. The rear wheels are fitted with solid rubber tires, and it is found that the mechanism is able to withstand the jolting over rough roads, provided the speed is not more than ten or twelve miles an hour. All the blankets of the battalion can be dealt with in two days.

THE WORK OF A FIELD AMBULANCE

According to regulation, a field ambulance is designed for the immediate medical assistance of troops actually engaged. Each is divisible into three sections—A, B, and C—which are capable of acting independently. Each of these sections again consists of a bearer division for the assistance and collection of the wounded, and a tent division for their reception and temporary treatment. The disposition of a field ambulance in action varies with the nature of the operations, but, as a general rule, the bearer division works in advance, the tent division forms one or more dressing stations, and the ambulance wagons work between the two. This presupposes a battle or engagement, or at least an "affair"—that is, a hostile action with a beginning, a middle, and an end. The present war is not confined to one country, nor even to one continent; it is, therefore, perhaps not extraordinary that, even in the details of field medical organization, there should be a departure from precedent. There have been battles of defined duration, but the bulk of the opposed forces in Belgium and the north of France have been for the most part engaged in trench warfare, without much variation in the hostile lines on either side. This siegeliike state of affairs is practically without precedent on a large scale in modern warfare, as far as British troops are concerned, and has led to considerable modifications in the work of various units. Lieutenant-Colonel G. N. Stephen, R. A. M. C., has given an interesting account of the development that has taken place in the work of the

field ambulances. In one case, instead of being constantly on the move (as the name implies), it became entirely stationary, and fulfilled the functions of a hospital for convalescents, a bathing establishment, and a clearing house for infectious cases. Another "ambulance" comprised an advanced dressing station, a rest station, a laundry, and a "respirator factory." The work in this last-named establishment was done by civilian labor, but under the management and charge of the medical officer of the field ambulance and his men. In a third instance a rest station and a bathing and laundry establishment were located in some farm buildings, and worked by the staff of a field ambulance. In a fourth instance three field ambulances were practically combined, in order to form two dressing stations, a convalescent hospital established in a permanent building and a large rest camp. This was certainly a varied scope of operations, and afforded turns of duty by which, as Lieutenant-Colonel Stephen puts it, "all shared in whatever was to be had in the way of dull work or exciting work, risky posts or safe posts, soft jobs or hard jobs." The "convalescent hospital" is not an official designation; the arrangements were those of a "clearing hospital" on a large scale; two large buildings were turned into hospitals or "rest stations." The patients were mostly men with slight ailments or trifling injuries, men undergoing antityphoid inoculation, men with pyrexia not apparently of a serious nature. The double purpose was fulfilled of (1) bringing possibly serious cases under regular treatment in the incipient stage, and (2) retaining cases that were likely soon to return to duty as near their units as possible.

ACHILLEION PALACE HOSPITAL, CORFU

On high ground at the northern end of the island of Corfu, in the most picturesque situation that can be imagined, a palace was erected some years ago for the late



Fig. 2. Achilleion Palace, Island of Corfu. General view.

Empress Elizabeth of Austria. After her death it remained vacant until 1907, when it was bought by the German emperor, who was struck by the exceeding beauty of the environment. The accompanying illustrations (Figs. 2, 3) give a faint idea of the character of the building and its surroundings. The palace has been devoted to the purposes of a military hospital, chiefly for wounded French and Serbian troops. This action by the Greek military authorities is stated to have, not unnaturally, displeased the German emperor. However this may be, the wounded troops of the allied powers are now being cared for on the

island made famous for all time as the scene of the shipwreck of Ulysses and of some of the chief events of the Peloponnesian War.

CONVALESCENT HOME FOR OFFICERS

The convalescent establishment at Cimiez, on the high ground above Nice, that was closed during the summer of last year, was reopened in November, and is now known as the Michelham Convalescent Home for Officers, the funds for its maintenance being provided by Lady Michelham. It is now classed as a regular military hospital, and is especially devoted to the care of officers suffering from wounds or injury to health due to service in the fighting



Fig. 3. Achilleion Palace, Island of Corfu. One of the porticoes.

line; chronic cases and those requiring much surgical attention are not admitted. The accommodation is for 100 patients, and the length of stay is limited to a month. The hospital is nursed by the Red Cross Society, but is officered by the Royal Army Medical Corps, and the matron is drawn from Queen Alexandra's Imperial Military Nursing Service. Each officer has a bed room of his own, but they mess together, and the wearing of uniform is compulsory. The comforts and surroundings of a Riviera hotel are combined with maintenance of military tone; and the genial climate expedites recovery. One must suppose also that the moral or psychological effect of such an environment, the beauty of the scenery, and the pleasant warmth (that is also dry and bracing in character, not enervating nor extreme) combine to have the best effects. The contrast with life in the trenches can be appreciated only by those who have experienced both modes of living.

ANGLO-RUSSIAN HOSPITAL AT PETROGRAD

A hospital was opened at Petrograd in the early part of the year, named the Anglo-Russian Hospital, established by a committee under the championship of Lord Cheylesmore, which also hopes to provide three field hospitals in places selected by the Russian military authorities, as a testimony of gratitude and admiration from the British to the Russian people. The hospital provides 200 beds with complete equipment, including an operating theater, x-ray apparatus, and bacteriological laboratory. It has been located in the palace of the Grand Duke Dimitri, and is under the command of Major A. M. Fleming, C. M. G., with a staff of nine physicians and surgeons, including a bacteriologist, an anesthetist, and a radiographer. The Dominion of Canada has shown its sympathy by contributing £10,000.

A RETIRED ARMY OFFICER.

CAREERS FOR YOUNG MEDICAL MEN

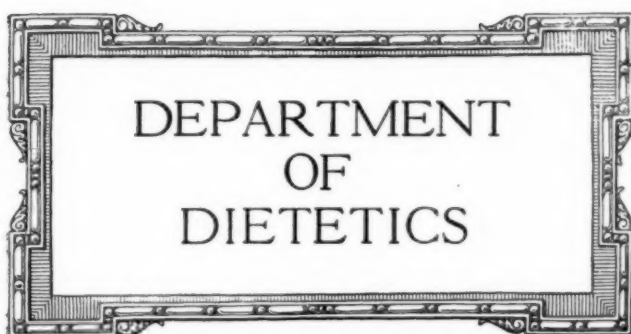
The Public Health Service Wants More Trained Medical Officers—An Attractive Field

According to a statement just issued by Surgeon-General Rupert Blue, young medical men between the ages of 23 and 32 will be given an opportunity each month to demonstrate their fitness for admission to the grade of assistant surgeon in the U. S. Public Health Service. There are several vacancies in the government's mobile sanitary corps, which is now in the 119th year of its existence, but in order to be recommended to the President for commission, a physical and professional examination must first be passed. As the tenure of office is permanent and the public health officers are ordered to duty in all parts of the world, they are required to certify that they believe themselves free from any ailment which would disqualify them for service in any climate. Boards will be convened at Washington, Boston, New York, Chicago, St. Louis, Louisville, New Orleans, and San Francisco, but permission to take the examination must first be obtained from the Surgeon-General. The examination is searching, and includes, in addition to the various branches of medicine, surgery, and hygiene, the subjects of the preliminary education, history, literature, and the natural sciences. The commissions will be issued as assistant surgeon, and after four years of service, the young officers are entitled to examination for promotion to the grade of passed assistant surgeon, and after twelve years of service, to another examination for promotion to the grade of surgeon. The annual salaries are: assistant surgeon, \$2,000; passed assistant surgeon, \$2,400; surgeon, \$3,000; senior surgeon, \$3,500; assistant surgeon-general, \$4,000. When the government does not provide quarters, commutation at the rate of \$30, \$40, and \$50 a month, according to grade, is allowed. All grades receive longevity pay; that is, 10 percent in addition to the regular salary for every five years until the maximum of 40 percent is reached. When officers travel on official duties they are reimbursed their actual traveling expenses.

Don'ts for Organizers

First, don't quarrel with your town or county, don't criticize your public officials, don't take refusals to help as being personal affronts. Don't remember past refusals or past difficulties, don't worry, and don't fail to ask the same people the next time you need help. Don't get excited, don't allow your feelings to be harrowed by suffering or need in any direction, don't think that nothing can be done. Get ready before you start, don't fail to stop and look and listen before you do the next thing. Don't take up any work unless you feel that you can do it and make it go. Don't allow yourself to be a martyr or a failure. Don't fail to do the little things in a big, comprehensive, far-reaching fashion. Don't allow discussion in meetings of work that can't be done, or people who won't help, or officials who refuse to take your advice. Make suggestions, but reserve your judgment.—Chloe Jackson, Organization of Tuberculosis Work in Small Cities and Counties, *Am. Jour. Nursing*.

A hospital to be known as the Myra Hancock Pfeil Memorial will soon be erected at Clarksdale, Miss. Plans for the building are being drawn by Architect Charles O. Pfeil, of Memphis, Tenn., who is one of the principal donors.



Conducted by MISS LULU GRAVES,
Dietitian of Lakeside Hospital, Cleveland, Ohio.

Please address items of news and inquiries regarding Department of Dietetics to the editor of this department, Lakeside Hospital, Cleveland, Ohio.

Dietetics in Ohio

In the January issue of THE MODERN HOSPITAL mention was made of the paper read by Dr. Upham before the Dietitians' Section of the Ohio State Teachers' Association. We now have the privilege of presenting this paper to our readers.

Dr. Upham, in behalf of the State Medical Board of Ohio, asked assistance in the solution of four problems which confront those of us who are interested in dietetics. These are being given attention by the dietitians of the state, and, judging from the interest manifested, something will be done toward solving them.

The result of the survey which Dr. Upham reports gives us specific information in regard to the kind of dietetic work being done in the state, which is evidently in need of attention.

We should be very glad to know what is being done in other states.

New York Dietitians Organize

The dietitians of New York city have at last organized. For some months they have been meeting informally at some of the larger hospitals. The field and influence of the dietitians is growing, however, and, realizing the increasing need of some central organization which will assist in standardizing their work, they have formed this association of dietitians. The moving spirits back of the enterprise are Miss George, of Mount Sinai Hospital, and Miss Speas, of Flower Hospital.

The breadth and scope of this association are refreshing. Not only are all things pertaining to diet and diet schedules presented to the members in the most approved fashion, but matters of general hospital interest are discussed.

At the last meeting Oliver H. Bartine, superintendent of Flower Hospital, outlined the remarkable work done by the hospital in the care of the victims of infantile paralysis during the recent epidemic. Thanks to the generosity of the board of trustees, the hospital early in the scourge threw open its doors to the little sufferers and assured them of every care that science could provide. The resultant low death rate and the remarkably high percentage of complete recoveries among the little patients admitted to the hospital will always stand as a shining testimonial to the unflagging care and unselfish attention given to them by the medical men in charge. Mr. Bartine gave a brief history of the epidemic, and particularly mentioned the work being done by the New York Committee upon the After Care of Infantile Paralysis.

Following Mr. Bartine, Dr. J. T. Simonson, head of the Chair of Pediatrics at the New York Homeopathic Medical College and Flower Hospital, outlined some rules for infant feeding. This phase of the work is one of the most important that the modern dietitian has to face, especially in view of the fact that so many of the newer hospitals are being equipped with large maternity and children's wards.

It is planned to have some one or more important and well-known persons address each meeting. Some of the speakers at the earlier meetings have been Miss Jane Delano, the head of the National Red Cross, and Professor Mary Rose, of Teachers College.

The New Pure-Food Catsup: or, When Is a Chemical Not a Chemical?

BY DR. J. A. WESENER, of The Columbus Laboratories, Chicago.

The preserving of foods for future use has been practiced by mankind from early times. The methods used for this purpose have been such as drying fruits and meats to remove the excess of water, and the adding of substances to them by external application, such as smoke, salt, saltpeter, and other substances, as in the preparation of meats by drying, smoking, and pickling. Vinegar and spices have been used in the preparation of foods and relishes for the table a considerable time. The purpose of these materials was to act as a preservative to the other ingredients of the food product, as well as to improve its flavor, because of their condimental value. In the preservation of food by the use of smoke there are introduced products which, when separated in the process of destructive distillation, are highly poisonous, and when taken in the concentrated form by man produce death. These substances include phenol and cresol, and others of like character.

Salt, although constantly used in the preparation of all foods and found to be an absolute necessity, is a preservative when used in excessive quantities, and was probably the earliest preservative in the preparation of such substances as meats and fish.

Later followed the use of saltpeter, which was, and is now, extensively used in the preservation of meats, such as corned beef, ham, and a long list of other products which are now put upon the market by the large packing concerns. The preserving action of saltpeter probably depends upon the change of the nitrate radical to the nitrite. At least this change always occurs during the process of preserving of meats by use of saltpeter. The red coloring which is imparted to corned beef, ham, etc., is brought about by the presence of nitrite reacting on the coloring matter of the meat.

Sugar is found as a natural preservative in such substances as dried raisins and other dried fruits, and is extensively used in the preservation of fruits and the making of jams of all kinds. It requires the presence of considerable sugar to bring about the complete preservation of the material, but lesser quantities contribute largely to this end, although complete fermentation and putrefaction is not prevented by it.

Vinegar has been used as an article of food from early times. It is used for two reasons: first, on account of its sour and agreeable flavor, and, second, because of its preserving action.

Spices were in use in biblical times; they are extensively used not only to improve the flavor of food stuffs, but to assist in preserving them against fermentation and putrefaction.

TOMATO CATSUP

Catsup is a name given to several kinds of sauces much used as a relish. It is made of several different substances, but the catsup most common in most markets of this country is tomato catsup, which is now so common that no table is considered complete without it. Although the tomato is supposed to be a native of America, it first found its use as an article of food from seeds which were brought from Europe. The plant was long cultivated as a curiosity before it was accepted as a food. Many were under the impression that, belonging to the nightshade family, it must possess poisonous properties. Of late its use as a garden vegetable has been gradually growing, and it is now perhaps one of the most common vegetables grown. Various methods of preparing this article for food are now common. It may be eaten raw, or it may be cooked for immediate use, or canned. One of its largest uses is in the preparation of catsup.

Catsup was formerly prepared solely by the housewife. The tomato was recognized by her as one of the most difficult substances to preserve, and there is hardly a person living who does not have some reminiscences of explosions which have occurred in the cellar by the fermentation of this variety of vegetable. The housewife's common way of preserving the catsup was by the use of sugar, vinegar, and spices, then the boiling and concentration of the product. The containers used were ordinary bottles, and these were filled and hermetically sealed while the finished product was still hot. They were then placed on shelves in the cellar. If no fermentations and explosions took place, the product was correctly made, and the housewife would then tell her neighbor the good luck she had with the catsup she made that fall. In case the product did ferment, bottles which showed this action were again worked over by boiling, more sugar, vinegar, and spices added, and then rebottled. Although the first preparation of the tomato catsup retained little, if any, of the tomato flavor, the second treatment of the fermented product removed any suggestion of the original flavor of the tomato. The concentration of people in large cities where they were no longer able to produce their own tomatoes and make their own catsup called for the manufacture of this product on a larger scale by those who could devote a great part of their time and attention to it, and arrange for the distribution to each household according to its needs.

On account of the element of luck which was always present in the household way of preserving catsup the manufacturer, by the aid of science, worked out a method which overcame all of the so-called luck in the preparation of this material. This was absolutely necessary to meet the new economic conditions which had arisen. This product had to be shipped long distances and remain on the shelf for months and years before it could reach the consumer. Any defects in its preparation entailed on him serious loss aside from the danger of the deleterious effect on the consumer from eating fermented and decomposed food. Catsup prepared by this latter process has numerous advantages. Aside from that of more thorough preservation, it retains much of its original tomato flavor. It is thinner and more conveniently removed from the container, and is commonly eaten by spreading it on the bread.

The essential point in this new method of preserving catsup was to introduce into it substances which assist in its preparation without in any way reducing or injuring its quality, or without adding any deleterious substance to the product itself. A natural preservative, which is found extensively in nature and which contributes to the long

keeping of fruits, such as cranberries, plums, and some berries common to the old world, is benzoic acid, and what should be more natural than for intelligent business men and men of science to look to a preservative of this character to meet the special requirements which they found in the preparation of tomato catsup?

(To be continued.)

The Dasheen

Just now, when potatoes are commanding such a high price that we feel like striking them from our list of staple foods, it is gratifying to know that there is a very good substitute for them. The dasheen is a vegetable similar in food value and composition to the potato, which has recently been introduced into culture in the Southern states. It has not yet become common in our Northern states, but there seems to be no reason why it should not be cultivated more extensively than it has been.

The Bureau of Plant Industry has prepared bulletins giving information in regard to the cultivation and use of the dasheen, with several recipes also included. The following paragraphs are quoted from one of these bulletins pertaining to the use of the dasheen:

"While all of the tuberous growth of the dasheen is edible, the medium-sized or large tubers are especially adapted for use like potatoes. The corms are usually drier and more mealy than the tubers, however, and by many persons are preferred to the tubers for boiling or baking, but until a pure strain, free from the occasional objectionable quality elsewhere referred to, has been developed, the medium-sized tubers will probably constitute the principal value of the crop on the market. The corms do not usually keep as well as the tubers, and it is therefore advisable to utilize them as early as practicable after harvesting."

USES

"The corms, which sometimes reach a weight of more than six pounds each are usually of a quality fully equal to the tubers and are excellent when baked, though occasionally one is found that, even when thoroughly cooked, proves a little too firm to be palatable. It is believed, however, that this undesirable character can be eliminated by using for planting tubers from such plants only as produce corms of satisfactory quality."

"The corms may be converted into flour, which can be made into soups and gruels. Dasheen flour, when used with wheat or rye flour, makes most delicious griddlecakes, biscuits, and bread. The griddlecakes do not become heavy by standing. Some 3,000 pounds of flour were produced during the season of 1912-13 from 200 bushels of corms and tubers. This flour was used experimentally by cooperators in cooking and baking."

CONCLUSIONS

"From the interest that has already developed among southern farmers who have become even slightly acquainted with the dasheen, it seems probable that this crop is destined to be of great importance to that section of the country. It can be grown as a summer crop in a region where the potato must be grown almost entirely as a spring crop, for it ripens its tubers in October and furnishes them for the table at a season when northern-grown potatoes have to be shipped in, at prices relatively high except in seaports. It has been demonstrated that it can be grown with at least a fair degree of success in the irrigated sections of the Southwest. It is a good yielder, comparing favorably with the potato. If grown on well-drained land it is not injured, as the potato is, by unusually wet weather, and it is therefore suited for cultivation on lands where the potato would be a failure. Its culture on wet lands in the South where the water supply can be controlled by drainage or otherwise is a subject of further investigation."

"The young leaves, when properly cooked, can be substituted for spinach at a time when the weather is too hot to grow spinach. The blanched shoots obtained by forcing dasheen corms in the dark in a greenhouse or under other suitable conditions constitute an entirely new product, which is meeting with general approval. The nutty flavor of the tubers gives them a peculiar palatability, which has struck the fancy of many people. The higher nitrogenous and starchy content gives them an advantage as food that would seem to make the plant, when compared with the potato, an even more valuable food producer."

The Status of the Dietitian in Ohio¹

BY J. H. J. UPHAM, Columbus.

My subject is a broad one and of great importance. It reaches out into the realms of economics, touching upon the conditions in every home and the community at large; into preventive medicine, as well as the treatment of the sick; it touches hospitals, their management, their cuisine, their therapy, and it is vitally concerned with the teaching of nurses in their training schools. This is no exaggeration, as doubtless all of you appreciate. In these latter days, when efficiency is the universal slogan, and results of effort are the criteria of success, the relation of foods to the production of energy is being scientifically investigated and estimated. It has been asserted from time to time that "as many ills come from overeating as overdrinking." If this could be changed to *improper* eating, I would not hesitate a moment to acclaim its truth. How many homes have been wrecked, how much unhappiness has been produced, how many actual crimes have resulted from this source, no one can answer.

The pangs of dyspepsia ruin the best disposition, distort the imagination and pervert the whole outlook on life; but to such mental and moral results are to be added no one knows how many cases of Bright's disease, arteriosclerosis, chronic gastric ulcers, even cancer, chronic constipation, cirrhosis of the liver, ptomaine poisoning, etc., which may arise from ill selected, badly prepared or improper quantities of foods.

In hospitals this subject raises the question of the selection and preparation of foods for very different classes of individuals; for the workers and attachés of the hospital, the executive staff, doctors, nurses and attendants, normal healthy individuals, for the most part, who should be so fed as to be kept in a state of high efficiency as an economic proposition, if for no other reason; then come various classes of patients, some recovering from the ravages of disease, who need a surplus of intake over waste to help repair the damages incurred; others still in the throes of fever, with excessive burning up of tissue, indicating the need again of a surplus intake; but with the disorganization of the functions there must be a nice adjustment of the amount and character of the food to the ability of the patient to take care of it properly; and still others with special diseases require special diets as the chief, and sometimes the only, therapeutic measure to be employed.

Added to this there is the supervision of the preparation of the food and the instruction of nurses as a routine part of the training. From all this the tremendous scope of this topic, and the multitude of problems it suggests are apparent.

As a member of the State Medical Board, which has, through its committee on nursing, the supervision of the training of nurses in the state, I would like to present only the subject of the status of the dietitian in the hospital and training school. While the board considers its chief functions to be educational, it is not narrowly pedagogic, and considers the dietitian not only in her position as an instructor to nurses, but in the broader relation as an important factor in the correct treatment of the patients from a diet standpoint, believing that the broadening of her scope enhances her value not only to the patients and the hospital, but also as a teacher believing, in other words, that the observation by the nurses in the wards of the dietary regulations of the patients will

emphasize and drive home the teaching of the dietitian in their classes.

The laws of the state in regard to the established requirements provide:

SECTION 7. The examination of applicants for certificates to practice nursing shall be conducted under rules prescribed by the State Medical Board. Each applicant shall be examined in anatomy, physiology, obstetrics, bacteriology, hygiene, materia medica, dietetics, practical nursing and such other subjects as the board and committee may require.

The rules regulating the carrying out of the law, as adopted by the board, merely require as a minimum that each student shall be taught diet cooking for the sick, including at least twelve lessons in cooking with a competent diet teacher; and also that they shall be taught food values and the feeding of special cases, and that this teaching shall be done in classes with practical work rather than by lectures. Fortunately, the wording of the law allows the state board considerable latitude; while it imposes an obligatory minimum requirement, it leaves to the board discretionary powers as to what constitutes an acceptable school, and how to define the term "competent diet teacher." This has worked out very satisfactorily in other directions; for example, in medical colleges, where, with a statutory minimum requirement for entrance, we, with the cooperation of the medical schools, have been able to elevate the standards so that now we do not recognize anything less than two years of college work. The board is anxious to standardize the teaching of dietetics in a similar manner, and to do so it must have the cooperation of the hospitals and that of the dietitians of the state; as an aid to this I feel sure that the expression of the opinion of a body such as the Dietitians' Section of the Ohio State Teachers' Association would be of great practical value, and would have the respectful consideration of the board.

Our first survey of schools applying for recognition shows twenty-eight hospitals with resident, graduate dietitians; one hospital with resident, non-graduate dietitian; five hospitals with non-resident teachers of dietetics; three hospitals having Sisters of Charity acting in this capacity; and thirty-seven hospitals without any dietitian or any preparation for teaching dietetics. Since the passage of the law referred to, diet schools are being added to the teaching equipment. Hospitals have found this a great deal easier to do than to provide competent diet training in hospital work, and thus far positions are hard to fill satisfactorily. Such a position presupposes a graduate dietitian who has acquired some hospital experience under a regular hospital dietitian; also some ability as a teacher.

Thus you see that conditions are somewhat chaotic; there are practical conditions in the hospitals to be considered which cannot be arbitrarily treated, although they must rank secondary to the welfare of the patients and the proper instruction of the pupil nurses if these institutions wish to be recognized as acceptable training schools. In addition, the science of dietetics is an actively evolutionary stage; the investigation of biochemistry and the relations of foods to energy production, to metabolism and to diseased states are yielding so many important data that what is acceptable teaching today will be faulty tomorrow, so that time, patience and diplomacy will be necessary before many of these problems, which are at present so complex, can be solved satisfactorily to all concerned. In order, however, to bring something concrete to your attention I would like to present for your discussion three or four problems in the hope that you may assist the board in establishing a proper status for hos-

¹Read before the Dietitians' Section of the Ohio State Teachers' Association.

pital dietitians, and elevate the teaching of dietetics to its proper plane.

First: What is the proper amount of instruction to be given student nurses? I feel that the minimum requirements as already quoted are far too low. I do not see how any more than an elementary, or even rudimentary, knowledge could be acquired in such a course. Doubtless it is supposed and intended to be supplemented by practical application of the principles in the wards, but I am quite certain, unless this is specifically required and checked up, in the busy ward life and multitudinous other duties it will be largely lost sight of, unless in a few cases of special interest and aptitude on the part of some few students—and all teachers know how little may be hoped for in this regard in an average class. In many hospitals this course in reality only teaches the average nurse to prepare the ordinary invalid foods, differentiating only between "general diet" and "light diet" and to administer "nourishment" ever so often; or to prepare tasteful and attractive-looking trays. This is quite sufficient, it is true, for the average case, but too often there is little real knowledge of the principles involved. I have had experiences, for instance, in applying the Lenhart treatment for gastric ulcer, and the Allen treatment of diabetes, in which substitutions were made innocently and thoughtlessly which upset the rationale of the treatment completely.

Offhand, I cannot state just how much I think this course should be extended; it would require careful thought; but in general I believe there should be, in addition to the diet school instruction, some supplementary practical work in the wards, still under the observation of the dietitian.

Second: What constitutes a competent diet teacher in a hospital? In the first place, she should be a graduate dietitian; and that brings up the question of acceptable schools of dietetics, which should receive some consideration. Hospital dietetics seems to me a special branch of that subject, and I think schools preparing to train dietitians for hospitals should give special courses preferably, or at least special attention to certain subjects relating to specific dietaries in at least the more frequent diseases. It would be very desirable also for an aspirant to the position of hospital dietitian to acquire actual hospital experience as a subordinate. If she is to teach, she should have at least an aptitude for teaching, and experience as assistant in such work would also prove of great value.

Third: What should be the relation of the diet teacher to the general service of the hospital? It must be remembered that the state medical board is officially interested in the hospital dietitian chiefly as a *teacher*; therefore the board considers it important that the diet teacher be definitely recognized as an important member of the instructional force. The board realizes also the great advantage to the students of the practical application of the class-room teaching in the wards; that the impressions are much more durable if the student observes the diet teacher apply her own teachings in the cases of actual illness. I believe that in the smaller and middle-sized hospitals, the diet teacher should also be dietitian, that is, have supervision of the preparation and serving of all food for the patients, and where possible have supervision at least of the buying of the food supplies. In the larger hospitals at least some arrangement should be made, I believe, for an active dietary service on the part of the diet teacher, and some connection, advisory at least, could be arranged with the purchasing department as far as foods are concerned.

Twenty years ago, while an intern at Johns Hopkins

Hospital, I witnessed some pioneer work along these lines. There was maintained then merely a diet school for the pupil nurses, with, as I remember, no real opportunity for the practical application of the didactic and class-room teaching. Great strides have been made since then, and I cannot feel that the plan of the diet school is up to date; I feel that it is not pedagogically correct and the restriction of the duties of the trained dietitian to the class room deprives the hospital and its patients of valuable service, and leads to deterioration in the teacher herself in thus narrowing the field of her activities.

Fourth: How can the position of diet teacher be made more attractive to students of dietetics?

Too often the position of diet teacher in a hospital is an anomalous one; in some she may be regarded as a superior sort of cook; in another she is more or less isolated, with little recognition of her important place as a part of the instructional force, which is quite on a par with that of the head nurse of a floor or ward.

Unquestionably she would receive greater recognition; and that will follow if she is given more active participation in the management of the hospital and the treatment of patients. She should be given the social recognition to which she is entitled as a part of the teaching staff; and, lastly, she should be given better financial recognition, nearer commensurate with the importance of her services if they are properly utilized.

MAN IS LIKE A FURNACE

Overfed or Underfed His Body Works Badly—Clean Out the Ashes and "Fire" Judiciously

"Consider the furnace," says the latest Bulletin of the U. S. Public Health Service.

"Theoretically this is a machine for the economical production of heat. If the proper amount of the proper kind of fuel is properly put into it, if the ashes are properly cleaned out, if the drafts are properly managed, the chances are that it will heat the house properly. If, on the other hand, too much or too little fuel is put into it, if the fuel contains too much noninflammable material, if the fire is not kept clean of ashes, or if the dampers are badly regulated, the furnace operates inefficiently or ceases working altogether. Perhaps the most important thing, next to putting in the fuel, is to clean out the ashes. If these are allowed to accumulate in the ash pit, the grate bars may be burned out.

"Food is taken into the human body for the purpose of producing heat. The standard of its value is the number of heat units it contains. If too little fuel is taken into the human body, an insufficient number of heat units to operate it are received and it works inefficiently. If, on the other hand, too great an amount of food is taken, the body becomes clogged and works just as inefficiently as if it had received too small an amount. The most important thing is to remove promptly all of the waste materials remaining after the food has given up its heat units. If too great an amount of this debris is allowed to remain, the fires of the body are in danger of being put out by these materials. The elimination of these materials is one of the functions of the intestinal canal. One of the requisites of good health is an educated intestinal apparatus. Perhaps this is even more important than an educated set of brains. Certainly an educated set of brains cannot work effectively so long as the intestinal apparatus is badly operated."



"HEALTH FIRST" IS THE MOTTO

* * *

Welfare Work of the Commonwealth Edison Company Also Contemplates Sick Benefits, Savings, and Recreation

BY HENRY G. KOBICK, Superintendent Employment Bureau.

The rapid advance of modern industry has been marked by one of the most significant problems to be solved by the management of companies employing large numbers of employees. This has been termed by modern sociological writers, "personnel." The problem of keeping a unified, loyal spirit among employees has been largely solved by the personal touch in so-called welfare work. In this broad and general term are included all steps taken by employers to insure the health, happiness, and contentment of employees. The Commonwealth Edison Company has long



Fig. 1. Commonwealth Edison Company. Examination of employee in the medical department.

recognized the importance of work of this character, and the writer will attempt to briefly describe the more important features of this work conducted by the company.

Foremost among the measures taken by the company for the welfare of its employees is the problem of safeguarding their health. There can be no better movement toward improving the efficiency of any organization than a "Health First" movement, which, if properly organized and conducted, will produce even greater results than the wonderful "Safety First" campaign, recently conducted throughout the entire country. As a step in this direction, there was instituted about six years ago the plan of a thorough medical inspection of applicants, coupled with a systematic semiannual inspection of all employees. For this work a medical department was established, consisting of a chief surgeon, two assistant surgeons, and nurses. During the past year approximately 7 percent of all applicants who had the necessary qualifications were rejected by the company physician as being ineligible for appointment to the service. About 10 percent of these applicants

who were employed were found to be in condition which permitted their appointment to the service, provided they took the proper steps to remedy such ailments as incorrect eyesight, decayed teeth, adenoids, enlarged tonsils, etc. Those of our permanent employees who are discovered at our semiannual inspections to be in failing health are either given leave of absence or transferred to positions in the company better suited to their condition. On recommendation of department heads, ailing employees are permitted to consult the company physicians, who prescribe for them and determine whether they should be sent home.



Fig. 2. Commonwealth Edison Company. Operating room in the medical department.

The company also employs a trained visiting nurse, whose duty it is to visit the homes of employees who are reported absent, and make recommendations, wherever necessary, for relief or improvements in living conditions of employees. The company has always followed a very liberal policy in giving relief to employees who are in failing health, and in some cases has continued such employees on the payroll for a considerable period of time. Provision is also made for the relief of dependents of deceased employees and it is the duty of the visiting nurse to keep in touch with these families. Wherever there are

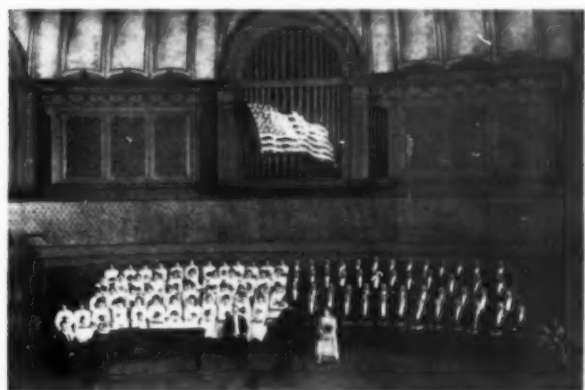


Fig. 3. Commonwealth Edison Company. Choral Society.

dependents who are able to work, employment is found for them in the company, and suggestions are made as to the education of the children.

Hearty support is given to the local section of the National Electric Light Association, which is composed entirely of men employees. Monthly meetings of this section are held in Customers' Hall, Edison Building. The program of these meetings usually consists of a talk by

some prominent speaker, followed by an entertainment provided by local talent. In addition to these meetings, group educational meetings are conducted by employees, at which competitive papers are read and discussed. All recreational, educational, and athletic activities are promoted through the medium of the local section. These consist of an orchestra of 100 pieces, a players' club, which gives entertainments at monthly meetings and an annual show, a choral society of about 100 voices, chess and checker clubs, rifle range, baseball teams, bowling clubs, and golf and tennis tournaments. Trophy and individual prizes are given to those who are most proficient. An outing for all employees is given during the summer of each year, at which entertainment and sport of the usual kind are provided. The women employees of the company have an organization, and hold monthly meetings, for which a dinner is provided by the company, and which is prepared and served by the women themselves. An annual outing for women employees exclusively is also given in the fall of each year.

The company promotes thrift among its employees, and has provided a savings fund, in which employees deposit to participate in the purchase of stock. Subscription lists for the purchase of stock are formed from time to time, in order that employees may become in a measure partners in the organization. A pension system has also been provided by the company.

The importance of work of this character is just beginning to be realized throughout the country, and the effect that it will have on the attitude an employee bears toward his company will, in a large measure, be the result of what was first termed the personal touch between the employer and the employee.

KEEPING EMPLOYEES HAPPY

* * *

Music, Rest, and Recreation Contribute to the Success of a Button Factory and the Content of Its Employees

BY HAROLD CARY.

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You cannot make a factory hand happy by putting in a hospital. Workers will be unhappy if you have not such a necessary adjunct to the plant, but it will not make them happy and care-free. Nor, thinking for the welfare of your men and women, will you assist them up the ladder of joy in work with a large sign recommending safety first or abstinence from booze? Look at it another way. What makes you joyful? A game of golf, a quiet rest, a little music, and light, clean surroundings. All right, then; give something on that recipe to your employees—that is, if in these days of munitions plants and high wages, you want to keep your work benches filled and your output at maximum figures.

There we have told you the secrets of the factory success of the largest button factory in the world, located in the heart of the button industry at Rochester, N. Y. In that daylight plant millions of ivory nuts from South America are turned into dress and trousers buttons to hold on the clothes of the world, and since we sat at a turning bench in that factory for an hour we can recommend making buttons to the man who likes monotony. Every operation in the factory is a monotonous one, since it takes seventy people to turn a nut into a button and the work is divided so that no one except the last polishers ever see a bit of the finished product. You cannot ride a button home at night after making a few thousand of its inner parts the way you can ride an automobile home

after making some of its insides all day. Hence, in the first place, music: The manufacturer knew that music hath power, so he installed phonographs in the big rooms. All day long they turn out lilting melodies, and the girls who card buttons—sewing them on squares of cardboard as you see them in the stores—actually enjoy their work as a result. No machine has been devised as yet which will card buttons efficiently, like girls plus music. In the larger machine rooms, where the noise prevents the use of anything musical except a brass band, the men get along without music, but their sight is pleased by the huge potted palms between the machines. The carding room has palms too, so that on first glance the big-widowed room looks like a conservatory phonograph concert to which the feminine guests have brought their sewing.

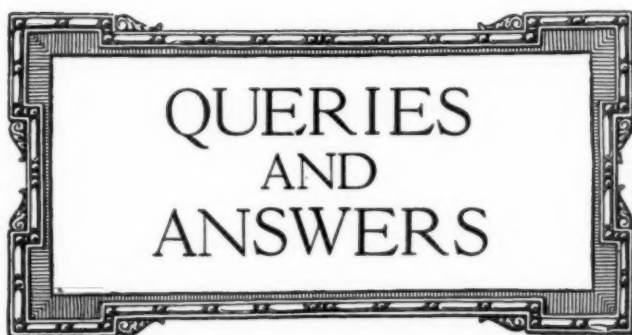
Next on the list comes rest. It is simple, when it has been worked out. Every hour a big gong rings, and all the workers knock off for ten minutes to chat and chatter to their hearts' content. The surprising thing then is that many of the girls keep right at their task while they talk; to stop them would be like trying to slow down a quilting bee. But the psychological effect is splendid. Everyone knows that he can stop if he wants to and so he does not care whether he keeps on or not. This is not true in the machine rooms, since the power is turned off for a period of ten minutes so that the noisy shops will be quiet and nerves kept from stringing too tight. There is also the question of refreshment. Neither tea nor beer is served, but two white-coated youngsters keep on the march all day long with a wagon loaded down with individual drinking cups. Water, and sometimes iced lemonade, is the beverage.

Most important of all is the recreation. This manufacturer has a plant that is situated in a huge park with beautiful trees, so that his whole establishment would do credit to a residential section. The open space is laid out for different sports, of which the most popular, strange to say, is the ancient one of bowling on the green. Rivalry between teams is acute and the league season lasts from snow to snow. Balls are furnished to the company by a sporting-goods manufacturer and assigned to individuals. They are carefully oiled and kept always in net bags so that they do not get chipped knocking around the recreation room.

There is a complement of all the recommended welfare departments at this factory. They are not unusual except in their uniform excellence. The hospital is better than that found in most educational establishments, painted white and kept by a registered nurse who is in constant attendance. The lunch room is a community affair, and the day we spent in looking over this modern wonder of factories it was most neighborly. The president and his staff sat at a big round table and ordered food from a menu which carried the maximum price of seven cents for one dish. It was possible to get an excellent meal for twelve or fourteen cents, piping hot and quite appetizing. The only distinction between the executives' mess and the workers' tables was that a bright-eyed girl waited on our table and that elsewhere bright-eyed girls and young men waited on themselves.

So the next time you sew on a trousers button look it over. It was made from an ivory nut, growing in South America, and if it came from Rochester the seventy people who had a hand in it were humming or whistling at their task. So were the 1,100 other workers at the factory.

The Flushing Hospital, Flushing, N. Y., will build a \$25,000 addition this spring.



Soundproof Floors and Doors

To the Editor of THE MODERN HOSPITAL:

I have looked over my files of THE MODERN HOSPITAL, but do not find what I want. Where can I get information on "soundproof" floors and doors? We have drawn our own plans, so have no one to consult on this.

NEBRASKA.

There is an adage that "a man who is his own lawyer, has a fool for a client." The same might justly be said of one who draws his own plans for a hospital. You can hire an architect, pay him a decent fee, and get a hospital that is not only far better but also cheaper in the long run, quality and arrangements considered.

Aside from this, however, it would be utterly useless to attempt to give you any help unless we knew more about your details. Is your hospital to be of fireproof materials, and, if so, what? Is it to be one story or more? Is it to be large or small? How many beds is it to have or how many cubic feet of space? How much money have you to spend?

Health Insurance in Hospitals

To the Editor of THE MODERN HOSPITAL:

We are considering starting a health insurance organization in connection with our sanatorium, and would be pleased to know if there are any institutions in the land operating a health insurance. Any information you may be able to give us along this line will be greatly appreciated, also any suggestion that you might offer, as to advisability or practicability of a move of this kind.

A MISSOURI HOSPITAL.

The following reply is kindly furnished by Dr. W. A. Evans, health editor of the Chicago *Tribune*.

"I do not know exactly what your correspondent wishes to know. If his sanatorium intends to insure the health of people generally, he will find that there are companies in the field that are doing that work. I am sure that the insurance commissioner of Missouri could furnish a long list of such companies. The only one of which I have personal knowledge is the American Health and Accident Insurance Company, of Nashville, Tenn. Such companies pay cash benefits and the insured can use the money in securing treatment wherever he pleases.

"I do not know of any institution in this country which insures and gives treatment in the sanatorium or hospital connected with such institution except the various hospitals, of which there are many in Chicago, where they give medical care at so much per year.

"Most European countries have health insurance as a function of the state and there are sanatoriums in connection with such insurance foundation. Perhaps your correspondent would like to read something about this system. He can read of the German system in Dawson's 'History of Health Insurance in Germany,' or Carr Gathcart and Taylor's work on 'Health Insurance in England'; or Rubinow's book on 'Standards of Health Insurance.'

"If this information is not what your correspondent

wants, kindly ask him to write in detail just what he wants to know and I will reply as best I can."

Advertising the Hospital

To the Editor of THE MODERN HOSPITAL:

I am interested to know what saith "the law and the prophets" about the advertising of hospitals in the lay press or newspapers. I built and equipped a thoroughly modern hospital last year, and opened it in July. It has 31 rooms and was opened as an "open" hospital, where any reputable physician may come and do or bring his work. The institution has been liberally patronized, both by my own patients and by other physicians. But I am ambitious to be instrumental in building an all-round clinic here, a place where the sick of this territory may come, and a place from which nurses for this territory may be obtained. So I thought of advising the people of this territory, through the newspapers, that there is such a place, where general medical and surgical cases are treated by a staff of men, and from which nurses may be had. I keep twelve nurses on my staff, and others registered, and my staff of physicians, or the physicians who are doing all of their work at my hospital, are the best men in this section.

I wish this institution to render service to this country. How is this country to know about the institution and its resources unless the word be sent out? It goes without saying, inasmuch as I am of "the strictest sect of the Pharisees," that any institution with which I am connected would have to make its resources known in quite conservative language, keeping severely within the bounds of wholesome propriety and thoroughly good taste. But, what saith "the law and the prophets" on this point? Please write me fully and promptly.

ALABAMA.

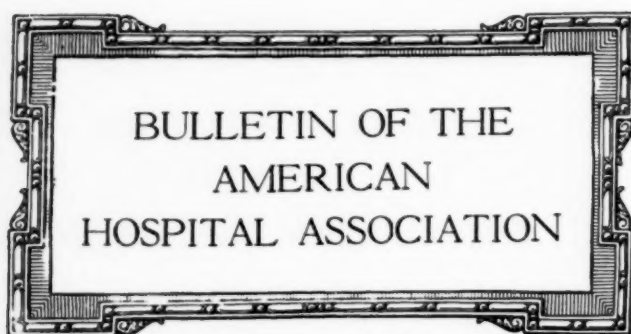
"The law and the prophets" seem not to have had the problems of the modern hospital in mind; and it is quite certain that the ethics of the medical profession cannot limit the activities of hospitals. While it would be entirely unethical for you or any of your associates to advertise your business in the daily press, it is quite admissible for hospitals to do so, and we think it is an excellent way to bring about recognition on the part of the people in the community. If you will read an editorial, "Advertising a Hospital," page 32 of the January number, you will find there some suggestions as to methods that have been tried successfully elsewhere. The hospital referred to in this editorial is the Minneapolis City Hospital, a charity institution, but one that has derived an immense amount of benefit, not only in popular esteem, but by way of increased appropriations, because of its methods of taking the public into its confidence.

Would you not be able to secure the cooperation of your daily papers and give them some interesting special articles about the hospital? The health of a community is always an interesting topic for the newspapers and if the articles could be written in a newsy style they ought to be of much local interest and the newspapers ought to be glad to have them. In any event, you will be perfectly safe on the ethical side to advertise the value of your hospital to the community.

Pennsylvania Hospitals Refused Aid

The Pennsylvania State Board of Charities has recommended that the usual "state aid" to hospitals be withdrawn from the following: the Douglass Hospital, the Gynecean Hospital, the Osteopathic Hospital, and the Providence General Hospital of Germantown.

The reasons given are that one hospital has no local support; that the income of another is greater than its expenditures; that a third occupies an old, insanitary building without proper facilities; and that serious charges are pending against the superintendent of another.



Monthly Bulletin issued from the Executive Offices
44 Baxter Building, Philadelphia, Pa.
WILLIAM H. WALSH, M. D., Secretary.

Official Bulletin for February

TRUSTEES' MEETING

The board of trustees held a meeting at the Bellevue-Stratford Hotel, Philadelphia, January, 1917, at which many matters of interest to the association were discussed.

CLEVELAND PROGRAM

The president desires to announce the fact that he is preparing the program for 1917, and that he invites suggestions from members as to their preference for subjects. It is hoped that members will respond freely to this invitation, and that those who desire to present papers will communicate with the secretary at the earliest possible date. To those who contemplate submitting papers, the following information will be of interest:

1. New subjects will be very welcome, but since "nothing is new under the sun," it is suggested that prospective authors acquaint themselves with the literature already published on the matter to be presented. If they will do so the association will be saved the time and expense entailed by the presentation of a flood of already known facts and opinions.

2. An author whose paper is accepted will be required to submit an abstract on or before July 31. The importance of this request cannot be overestimated, and failure to comply with it may cause a paper to be omitted from the program.

3. Attention is invited to the requirements of the by-laws regarding the property rights of papers presented to the association. Authors should understand that the association reserves exclusive right to publication, and shall have the right and authority to determine when and where convention proceedings shall be published.

4. Members designated to open discussions will be supplied with copies of abstracts so that it will be possible for them to prepare intelligent discussions prior to the meeting.

COMMITTEE APPOINTMENTS

The president has already announced the names of those chosen for committee work, and in this connection he desires to request the various chairmen to prepare abstracts of their reports on or before August 1, 1917. Each chairman is also requested to advise the secretary of the time necessary for reading the committee report.

The various committees are made up as follows:

Membership Committee.—Dr. Wm. H. Walsh, chairman, Philadelphia, Pa.; George Baily, Jr., Cooper Hospital, Camden, N. J.; Miss K. M. Prinderville, Joseph Lawrence Free Hospital, New London, Conn.; Dr. A. W. Smith, Hartford Hospital, Hartford, Conn.

Nominating Committee.—Dr. Renwick R. Ross, Buffalo

General Hospital, Buffalo, N. Y.; Miss Ida M. Barrett, Blodgett Memorial Hospital, Grand Rapids, Mich.; H. E. Webster, Royal Victoria Hospital, Montreal, Can.

Committee on Non-Commercial Exhibit.—Miss Alma Hogle, Huron Road Hospital, Cleveland, Ohio; Sister M. Genevieve, St. Elizabeth Hospital, Youngstown, Ohio; Miss Esther T. Jackson, Augustana Hospital, Chicago, Ill.; Miss Roberta M. West, Philadelphia Hospital for Contagious Diseases, Philadelphia, Pa.; Miss Alice Thatcher, The Christ Hospital, Cincinnati, Ohio; Miss Mary Jamison, Grant Hospital, Columbus, Ohio; Miss M. A. Lawson, City Hospital, Akron, Ohio; Miss L. K. Keller, Asbury Hospital, Minneapolis, Minn.

Publication Committee.—Dr. Wm. H. Walsh, chairman, Philadelphia, Pa.; Daniel D. Test, Pennsylvania Hospital, Philadelphia, Pa.; Captain E. F. Leiper, Episcopal Hospital, Philadelphia, Pa.; Dr. Wiley E. Woodbury, Hahnemann Hospital, New York city.

Committee on Health Insurance.—Dr. S. S. Goldwater, Mt. Sinai Hospital, New York city; Michael M. Davis, Boston City Dispensary, Boston, Mass.; Dr. John M. Peters, Rhode Island Hospital, Providence, R. I.; Dr. W. T. Graham, University Hospital, Iowa City, Iowa; Dr. H. O. Collins, City Hospital, Minneapolis, Minn.; Dr. R. G. Broderick, San Francisco, Cal.

Committee on Out-Patient Work.—Michael M. Davis, Boston City Dispensary, Boston, Mass.; John E. Ransom, Central Free Dispensary, Chicago, Ill.; Dr. R. S. Seem, Johns Hopkins Hospital, Baltimore, Md.

Committee on Legislation.—Dr. George O'Hanlon, Bellevue and Allied Hospitals, New York city; Dr. Arthur B. Ancker, City and County Hospital, St. Paul, Minn.; Rev. D. R. Pevoto, Baptist Sanitarium, Houston, Tex.

Committee on Standardization of Hospitals.—Dr. Winford H. Smith, Johns Hopkins Hospital, Baltimore, Md.; Dr. W. L. Babcock, Grace Hospital, Detroit, Mich.; Dr. F. A. Washburn, Massachusetts General Hospital, Boston, Mass.

Special Committee on Accounting.—Dr. A. R. Warner, Lakeside Hospital, Cleveland, Ohio; Dr. J. B. Howland, Massachusetts General Hospital, Boston, Mass.; Cornelius S. Loder, New York city.

Committee on Preparedness.—Dr. F. A. Washburn, Massachusetts General Hospital, Boston, Mass.; Dr. G. W. Nealley, Brooklyn Hospital, New York city; Captain E. F. Leiper, Episcopal Hospital, Philadelphia, Pa.

Local Committee on Arrangements.—Members of the Cleveland Hospital Council.

Delegate to Council on Health and Public Instruction A. M. A.—Dr. John A. Hornsby, Chicago, Ill.

Delegate to American Public Health Association.—Michael M. Davis, Boston City Dispensary, Boston, Mass.

Committee on Constitution and Rules.—Richard P. Borden, Union Hospital, Fall River, Mass.; Dr. H. B. Howard, Peter Bent Brigham Hospital, Boston, Mass.; Dr. Cleveland H. Shutt, City Hospital, St. Louis, Mo.

Committee on Necrology.—Dr. Henry M. Hurd, Johns Hopkins Hospital, Baltimore, Md.

Members contemplating the presentation or discussion of subjects embraced within the titles of the various committees will facilitate the business of the association by communicating their views to the committee interested. For instance, if a change in the constitution or by-laws is contemplated or desired, such suggested change should be submitted in good time to the committee on constitution and rules. The same procedure should be followed with suggestions on legislation, out-patient work, accounting, health insurance, etc.

INCORPORATION OF THE A. H. A.

Recognizing the advantages, and, indeed, the necessity, for the incorporation of the association as an eleemosynary organization, the trustees discussed this subject at some length. It was the unanimous opinion that an organization of the size and importance of the American Hospital Association should avail itself of the rights and privileges of a corporation, and in order to take the preliminary steps in that direction, the matter was referred to a subcommittee for future consideration, and the secretary instructed to obtain information regarding the requirements of the various states for incorporated charitable bodies.

HOUSE OF DELEGATES

The committee appointed to consider and report upon the recommendations contained in the address of the president at the eighteenth annual convention urged the trustees to consider the advisability and practicability of establishing a house of delegates, for facilitating the more orderly and speedy transaction of business during the annual conventions. As it was impossible to reach any definite conclusions as to the basis of representation at this time, the subject was laid upon the table for consideration at a later date. In order that some progress might be made at the Cleveland convention, however, the fact was brought out that the president could so arrange the program as to provide for a business meeting at which only active members would be obliged to attend, and the president expressed himself as in favor of such an innovation.

SECTION ORGANIZATION

In the furtherance of the desire to provide the necessary machinery for the establishment of sections of the association, as provided by the constitution, the trustees considered a tentative draft of a constitution and set of by-laws submitted by the secretary for the use of organizations contemplating such recognition. The subject will receive the attention of each trustee, and a report made upon conclusions reached at the next meeting.

STEREOPTICON LOAN LIBRARY

The secretary desires to announce that through the courtesy of the U. S. Public Health Service members of the association may borrow sets of slides for educational purposes. Requests for these slides may be made to this office, and should reach us at least one month in advance. The following subjects are of especial interest to hospitals:

	Slides
Children and Children's Diseases.....	65
First Aid (Incomplete).....	100
Health Exhibits.....	100
Hookworm.....	110
Leprosy.....	50
Housing (Incomplete).....	21
Malaria.....	200
Mouth Hygiene.....	15
Milk.....	24
Physiology, Excellent for Nurses.....	30
Rural Schools (Incomplete).....	10
Tuberculosis.....	100
Typhoid Fever.....	250
Veneral Diseases.....	36

REGARDING MEMBERSHIP

For fear hospital superintendents are unaware of the fact, attention is again invited to the provisions of the constitution regarding the eligibility of almost everyone in the hospital family to membership.

Section 2. Active members shall be those who at the time of their election are trustees or superintendents, or assistant superintendents, of hospitals, or members of the medical staffs of hospitals, however such officials may be designated. Any person once an active member may continue such membership so long as the rules of the association are conformed with.

Section 3. Associate members shall, at the time of their election, be heads of any executive, administrative or educational department

of a hospital, other than as designated in Section 2, or contributors to, or members of, any association or board the object of which is the foundation, maintenance or improvement of hospitals or the promotion of organized charities for the improvement of health. Associate members may hold office, but shall not have the right to vote at meetings of the association.

PROCEEDINGS OF THE EIGHTEENTH ANNUAL CONVENTION

Each member of the association is entitled by reason of membership to one copy of the annual proceedings; it frequently happens, however, that more than one copy is desired so that the nurses, doctors, trustees, etc., may avail themselves of the fund of information contained therein. If you care to preserve your own copy, it is suggested that you purchase for the hospital one extra copy, and the secretary is now prepared to receive subscriptions. By order of the trustees the Transactions will be sold for \$1.50 per copy. Every copy sent to others than bona fide members, and each additional copy sent to members will be charged for at this rate.

AMERICAN MEDICAL ASSOCIATION

Membership of Committees of Interest to Hospital People, Municipal and Nonmunicipal Hospitals

The Committee on Planning and Financing of Municipal and Nonmunicipal Hospitals, a subcommittee of the American Medical Association's local Committee on Arrangements, for the June convention, is composed as follows: Dr. George O'Hanlon, Medical Director, Bellevue and Allied Hospitals; Dr. Robert J. Wilson, Director of Hospitals, Department of Health; Hon. Henry C. Wright, First Deputy Commissioner, Department of Public Charities; Mr. Arnold W. Brunner, Architect, 101 Park Avenue, New York City; Mr. William S. Post, George B. Post & Sons, New York City; Mr. Philip Sawyer, York & Sawyer, New York City; Mr. T. J. van der Bent, McKim, Mead & White, New York City; Mr. J. J. Weber, State Charities Aid Association, Secretary; Dr. S. S. Goldwater, Chairman.

The membership of the American Medical Association's Committee on Trained Nursing and Training Schools is as follows: Miss M. A. Nutting, chairman, Teachers College, Columbia University; Miss Elizabeth Greener, vice chairman, Superintendent of Nurses, Mt. Sinai Hospital; Miss Jessie Murdock, secretary, Superintendent of Nurses, New York Post Graduate Hospital; Miss Annie W. Goodrich, Department of Nursing and Health, Teachers College, Columbia University; Miss Anna Maxwell, Superintendent of Nurses, Presbyterian Hospital; Miss Amy Hilliard, Superintendent of Nurses, Bellevue Hospital; Miss M. H. Jordan, Superintendent of Nurses, New York Hospital; Mrs. C. E. Bath, Superintendent of Nurses, St. Luke's Hospital; Miss Agnes Trull, Superintendent of Nurses, Brooklyn Hospital.

The American Medical Association Committee on Hospital Superintendents and Executives is composed as follows: Dr. Robert J. Wilson, chairman, Department of Health, New York city; Dr. William G. Nealley, secretary, Brooklyn Hospital, Brooklyn, N. Y.; Dr. George O'Hanlon, Bellevue and Allied Hospitals, New York city; Dr. C. H. Young, Presbyterian Hospital, New York city; Dr. Thomas Howell, New York Hospital, New York city; Mr. Alexander Candlish, Post-Graduate Hospital, New York city.

Fifty thousand dollars have been subscribed toward the erection of a new home for the Physicians and Surgeons' Hospital at Wilmington, Del. The hospital organization hopes to raise \$60,000 additional.



Side-Stepping Ill Health. Little, Brown & Co. \$1.50.

"Side-Stepping Ill Health" is one of the most readable books that has fallen into our hands for some time. It is in no wise technical so far as the use of scientific terms is concerned, but treatment of the various subjects and the advice given have a definitely scientific basis. The publishers are more than justified in their statement, as follows:

"Rarely does a practicing physician write so sensibly and entertainingly of the common ailments to which the flesh is heir as does Dr. Bowers in this compact volume. He has presented here just the facts you want to know; he explains the various kinds of colds and what to do for them, and there is a chapter on insomnia which alone is worth the price of the book. Those predisposed to corpulency will do very well to follow his advice on "side-stepping stoutness."

Pure Foods. By J. C. Olsen, A. M., Ph. D. Ginn & Co.

This is a good reference book for the dietitian. It is a collection of lectures in which the author, who is professor of analytical chemistry at the Polytechnic Institute of Brooklyn, gives the results of food analysis and experimental work done in the various laboratories where experts are performing these tasks for the state, city, or some private concern. His interest in giving these lectures to the public in book form may well be inferred from his statement in the preface:

"The coal for our engines must be tested and analyzed, but the far more precious human organism is loaded with a heterogeneous mixture of fuel of unknown composition. We should not be surprised at low efficiency, inability to work, sickness, even the premature death of an organism which is given so little intelligent care. When an intelligent, well-informed public demands analyzed, tested foods, they will be better served by the food producer, manufacturer, and salesman; and if such food is consumed in the physiologically proper quantity and variety, there will be far less inefficiency, sickness, and mortality."

While many chapters in the book treat of subjects not specifically connected with hospital work, yet there is enough material in it that is worth while to warrant giving it a place in our library.

Orthopedic Surgery for Nurses. By John McWilliams Berry, M. D., clinical professor of orthopedics and roentgenology at Albany Medical College, New York. Pp. 97, with 72 illustrations. W. B. Saunders Company, Philadelphia, 1916.

According to the author's introduction, this little book is not intended as a text-book, but merely as a means of adding to the nurse's stock of general information. The intention is merely to enable the nurse to recognize orthopedic deformities so that she may be able to advise parents and guardians to seek proper medical care. In line with this, the descriptions of the various conditions is very brief, outline drawings supplementing the text or in some cases supplying the place of extended descriptions. Chap-

ter 5, on "Weak Feet," contains some practical advice to the nurse on the choice of proper shoes and the care of the feet.

Rhymes of a Red Cross Man. By Robert W. Service, author of "The Spell of the Yukon," "The Ballads of a Cheechako," "Rhymes of a Rolling Stone," etc. Pp. 192. Cloth, \$1 net. Barse & Hopkins, New York, 1916.

"Mademoiselle Miss." Letters from an American girl serving with the rank of lieutenant in a French army hospital at the front. With a preface by Dr. Richard C. Cabot. Pp. 102, with illustrations. Cloth, 50 cents (published for the benefit of the American Fund for French Wounded). W. A. Butterfield, Boston, 1916.

Here are two books the authors of which—the one an Englishman, the other an American girl—are both engaged in work of mercy "somewhere in France." Both books are byproducts, so to speak, for neither author is a professional writer. Robert W. Service, the author of "Rhymes of a Red Cross Man," has written two or three books, to be sure, but he is an adventurer who has happened to write, rather than a writer who has sought adventure for the sake of turning it into copy. He has followed the gleam of True Romance into the frozen North and over the blood-soaked battle fields. Service has been for two and a half years driving an ambulance in and out of the firing line. The "scraps of song" that he has brought back are souvenirs of grisly facts and of glorious thrills.

"Yet oh, it's great to be here with danger,
Here in the weird, death-pregnant dark,
In the devil's pasture a stealthy ranger,
When the moon is decently hiding. Hark!
What was that? Was it just the shiver
Of an eerie wind or a clammy hand?
The rustle of grass, or the passing quiver
Of one of the ghosts of No Man's Land?"

"But if there's horror, there's beauty, wonder:
The trench lights gleam and the rockets play.
That flood of magnificent orange yonder
Is a battery blazing miles away.
With a rush and a singing a great shell passes;
The rifles resentfully bicker and brawl,
And here I crouch in the dew-drenched grasses,
And look and listen and love it all."

The charming letters of "Mademoiselle Miss" were written "for one and for one only," and are published, without the knowledge of the author, for the benefit of the American Fund for French Wounded. "Mademoiselle Miss," as her soldiers call her, is the daughter of an ex-medical director of the U. S. Navy. Being in France when the war broke out, she enlisted as a hospital helper, studied day and night for a nurse's diploma under the French Red Cross, passed with credit, and is now serving, with the rank of lieutenant, at a French army hospital near the trenches of the Marne. Nurse, autocrat, and little mother to twenty or thirty big, helpless children, she confronts terrific tasks—work fourteen hours a day, twenty-five operations daily in one week—and confronts them joyfully. "Actually for the first time in my life I began to feel as a normal being should, in spite of the blood and anguish in which I move," she writes; and again: "You can't imagine, I suppose, that we laugh and jest all day long? Yet so it is, and if you can't do that, you might as well get out, for all the good you will ever do a French wounded soldier. Why, I believe his very wounds wouldn't heal if he were not allowed to make merry over them. . . ."

Very different, this picture of the Red Cross, from that of the "Red Cross Man." The man gathers up rich experience from the "slaughter mill," and incidentally "does

his bit," the woman "does her bit," and incidentally garners rich experience—and both are breathlessly happy. Read both books—but don't choose Service's as a "night-cap" if you are a sleepless neurasthenic.

Bacteriology and Surgical Technic for Nurses. By Emily A. M. Stoney, formerly superintendent of the Training School for Nurses, Carney Hospital, South Boston, author of "Practical Points in Nursing," etc. Fourth edition, enlarged and reset. Pp. 342, with 223 illustrations. Cloth, \$1.75 net. W. B. Saunders Company, Philadelphia, 1916.

In the first 64 pages of this work, a brief history of bacteriology and a discussion of bacteria as the causes of disease lead up to the theory of antitoxins and the important subject of antiseptics, disinfectants, and deodorants. The inclusion of argyrol and hydrogen dioxid in the list of "most prominent chemical germicides now in use" is misleading, by the way, since neither argyrol nor hydrogen dioxid is a germicide. The discussion indicates that the author was aware of this fact, but the list, notwithstanding, is likely to have a wrong impression on the mind of the hasty reader.

The remainder of the book is devoted to surgical technic. The illustrations, especially those of the chapters on bandaging, and instruments and supplies, add materially to the value and interest of the text. The nurse's share in surgical work—care of operating room, sterilization and care of gloves, instruments, etc., catheterization, douches, enemas and lavage, preparation of patient for operation and care afterward are fully described. Several chapters have been entirely rewritten for this, the fourth edition.

Preventive Medicine and Hygiene. By Milton J. Rosenau, professor of preventive medicine and hygiene, Harvard; director of the School for Health Officers of Harvard University and the Massachusetts Institute of Technology. Second edition. Pp. 1,286, with 172 illustrations. Cloth, \$6.50. D. Appleton & Co., New York, 1916.

The second edition of this very important book contains much new material, and several chapters have been rewritten entirely or in part. The work now contains sections on: (1) prevention of the communicable diseases; (2) immunity, heredity, and eugenics; (3) foods; (4) air; (5) soil; (6) water; (7) sewage disposal; (8) refuse disposal; (9) vital statistics; (10) industrial hygiene, and diseases of occupation; (11) schools; (12) disinfection; (13) military hygiene. The sections on sewage disposal and refuse disposal are contributed by George C. Whipple and that on vital statistics by John W. Trask. The value of the remainder of the work is guaranteed by Dr. Rosenau's reputation as a sanitarian, earned in many years' varied experience as director of the hygiene laboratory of the U. S. Public Health Service, as quarantine officer, in epidemic campaigns, in epidemiologic investigations and in public health laboratories, at home, on the Continent of Europe, and in the tropics.

Public Health Nursing. By Mary Sewall Gardner, R. N., superintendent of the Providence District Nursing Association, president of the National Organization for Public Health Nursing, 1913-1916. Pp. 372. Cloth, \$1.75. The Macmillan Company, New York, 1916.

Public health nursing is a vital and indispensable part of the public health movement. This book, which Miss Adelaide Nutting, of Teachers College, New York, calls "the first really comprehensive treatment of so timely a

subject," is therefore an important contribution to the literature. It is not intended as a text-book; the author offers it with the modest hope "that it may prove helpful to nurses preparing themselves for public health nursing."

It should prove helpful, not only to public health nurses, but also to all who are in any way connected with or interested in public health nursing. It would be highly desirable that the second section, devoted to "Visiting Nursing," and the chapter on "Records and Statistics," in the third section, should be read by the lay members of all visiting nurse associations. These chapters—and, indeed, the whole book—are evidently the outgrowth of ripe experience; they are characterized by freedom from dogmatism and admirable common sense, and should help nurses and boards of managers to appreciate each other's problems.

TRIALS OF THE DOCTOR

Children Tell What Ails Them—Grown-ups Have Different Ways of Defeating the Object of Their Visit

It is curious how incapable some patients are of describing their symptoms or assisting the physician in his investigation into their cases. As a rule, children are the best witnesses in their own cases, says a doctor writing in *The Hospital*, London, and give an intelligible and straightforward account. You ask a child what is the matter with him, and he says at once, "I have hurt my arm," holding out the injured member for inspection. That tells one at once all one wants to know. But when the child's father presents himself and is asked the stereotyped question, "Well, what's the matter?" he begins something in this way: "Me and my mate got a day off, and so we thought we'd go to Epsom for a beano, so I goes to Bill Jones, who has a moke and a barrer, and 'Bill,' I says, 'how much for your moke and barrer for a day to Epsom?'" and so forth and so on.

The child's mother adopts a different attitude. She is intensely suspicious, and is not going to give herself away; and the conversation proceeds something as follows:

"Well, my good woman, what's the matter?"

"Ah! that's just what I come 'ere to find out."

"Well, but what do you complain of?"

"Oh, I don't complain. We all got to bear our troubles, and I bear mine. Gawd knows what's best for us, and it isn't for us to complain of what He sends us."

"But why do you come here?"

"Why, to be made better, o' course. What do you expect I come 'ere for? Pleasure? It ain't much pleasure to wait for an hour and a 'arf in that draughty 'all."

"Well, then, where is the pain?"

"All over me. You couldn't put a pin where I don't ache, and my poor back, well there! I feel sometimes as I shall break in two. Mrs. Brown she says it's the rheumatics, but I don't know. I think it's the liver."

"Where is it worst?"

"Well, I don't know, I think it's when I'm at the wash-tub, but sometimes it kitches me so I almost fall down with it."

Physician (in despair): "Here, Mr. Jones, will you take the history of this patient?"

The South San Francisco Hospital, a new corporation at South San Francisco, Cal., is having plans prepared for a modern hospital building to cost \$30,000. Dr. F. Holmes Smith and Dr. F. S. Dolley are active in the undertaking. The facilities of the new institution will include equipment for hydrotherapeutic treatment.



VINCENZ MUELLER, Technical Editor.
GEO. W. WALLERICH, Associate Editor.

Please address items of news and inquiries regarding New Instruments and Appliances to the editor of this department, 327 Southeast avenue, Oak Park, Illinois.

Progress in the Construction of X-Ray Apparatus

In reviewing the Roentgen equipment which has been presented to the profession during the past year, it is gratifying to note that a great deal has been accomplished in the way of standardizing apparatus and in simplifying the operating parts.

X-ray transformers are now considered as the necessary type of generator, and technical questions involving advantages of the induction coil over the transformer seem to have disappeared. The reason for this is probably due, more than anything else, to the fact that manufacturers of transformers have made improvements in construction which have met objections against the transformer type of machine. Much has been accomplished in the way of producing transformers which operate more quietly, occupy less space and have fewer working parts, yet which accomplish far more than the first machines which appeared on the market.

Some manufacturers are now building equipment which combines in one unit a sufficient range of current, so that fluoroscopy treatment or plate work may be done, in contrast to the two or three machines often recommended in time past. There has been a further tendency toward supplying equipment so arranged as to work to the best possible advantage in the hospital where it is to be installed.

Important as the x-ray department is to any hospital, probably no department receives less serious attention, in laying out plans or in remodeling, than the x-ray laboratory. Only too often is some corner selected, altogether inadequate for even limited work. After the hospital is completed or remodeling done, as the case may be, the matter of x-ray equipment is looked into. The discovery is then made that the service wires supplying current are of insufficient capacity, ceilings too low for the overhead high-tension systems, room too small to provide proper protection to the operator and for handling the patient, and numerous other conditions which greatly hamper the satisfactory operation of this very essential department. Some day, it is hoped, those in charge of hospital construction will give the x-ray laboratory the same consideration as is given the operating room, the sterilizing room, etc.

Manufacturers have had these conditions to meet, and frequently their equipment was not adapted to the space. A number of transformers are now built so that they can be separated, as regards the control system and the generator. In some instances where space has been limited the transformer proper has been placed on the floor below and the high-tension wires alone lead into the x-ray labo-

ratory, all controlling and regulating being done from a switchboard in the laboratory. This system has certain advantages, as it removes all noise from the room in which the patient is placed.

Modern roentgenography requires fast exposures with the patient under good control. One cannot much blame a nervous patient for becoming somewhat excited if taken into a small, dark room containing a generator which might be more noisy than necessary, and surrounded with the usual accessory parts which are, of course, necessary. All of these things are being taken into consideration by manufacturers, and, as stated, apparatus of late is being built better adapted to meet the trying conditions under which both operator and patient are at times placed.

It is, of course, impossible to give a detailed description of each item of equipment on the market and the particulars wherein it differs from the others. There are a number of very excellent makes of transformers, so that, as a rule, the purchaser today receives apparatus and equipment just about in proportion to the investment made. It is a mistake, however, to buy equipment as expensive as the modern outfit is without having assurance of a reasonable guarantee and of personal installation and instruction. One could some years ago buy a static machine, set it up by following the instructions accompanying it, and get along very nicely. This was true even during the time when the induction coil was the best machine available, but with the transformer delivering an enormous amount of current, new types of tubes, controlling devices, etc., it is important that one trained in the operation of the individual equipment being installed should be on hand to give the proper attention to the numerous details involved. Operating technic has changed greatly with the advent of the newer types of x-ray tubes.

There is hardly anyone at all conversant with the Roentgen art who is not acquainted with the Coolidge tube



Fig. 1. Victor Coolidge control.

and its wide range of usefulness. It is almost the universal consensus of opinion that if the Coolidge tube was not in existence, fluoroscopy and deep therapy would not be in as general use as these two important branches of roentgenology are today. The Coolidge tube, when operated,

must be energized from an independent low-potential current in addition to the high-potential electric current available from the x-ray generator. When the Coolidge tube was first presented, the source of the low-potential current for the filament circuit of the tube was a storage battery with an ordinary resistance type of control. Since that time, however, research workers have discovered that a low-voltage transformer type of control was much more simple and efficient than the storage battery. Among newer types of transformer controls which have been developed during the past year is the Victor Coolidge control, which is illustrated herewith (Fig. 1). The regulator which controls the volume of current allowed to pass through the filament circuit of the tube is calibrated to coincide with the ammeter reading, so that after the installation is made and the reading standardized the ammeter may be dispensed with. Current curves plotted from the storage battery; ordinary transformers and of the improved type of control, respectively, show the new control capable of retaining the constancy of the current variations from minimum to maximum. The apparatus is designed so that it may be used for centralized or remote control installation.

The Schamberg tube stand (Fig. 2) is designed to meet the exacting requirements of the roentgenologist who does a great deal of jaw and sinus work. Use of this stand eliminates the heavy, cumbersome, expensive tables and



Fig. 2. Schamberg tube stand.

various other apparatus which have been necessary heretofore. The Schamberg stand enables the operator to radiograph any part of the head with the patient in a sitting posture.

The weight and shape of the tripod on those stands enables the operator to move it around with ease and to fit it snugly around the base of the chair in the x-ray cabinet in such a way that it takes scarcely any space. This stand is counterweighted, a slight effort only being neces-

sary to raise or lower the tube to the desired position. Of particular importance is the quadrant, noticeable in the cut, which permits many positions of the tube heretofore impossible to obtain without moving the patient. By reason of this and the in-and-out and circular movement of the arms attached to the quadrant, any position may be obtained.

With the ever-increasing necessity of x-ray diagnosis and the elaborate equipment required nowadays, the development of "combination" accessory apparatus has received plenty of encouragement from hospitals. Before the advent of "combination" apparatus, it was necessary for the Roentgen laboratory to install a tube stand, a

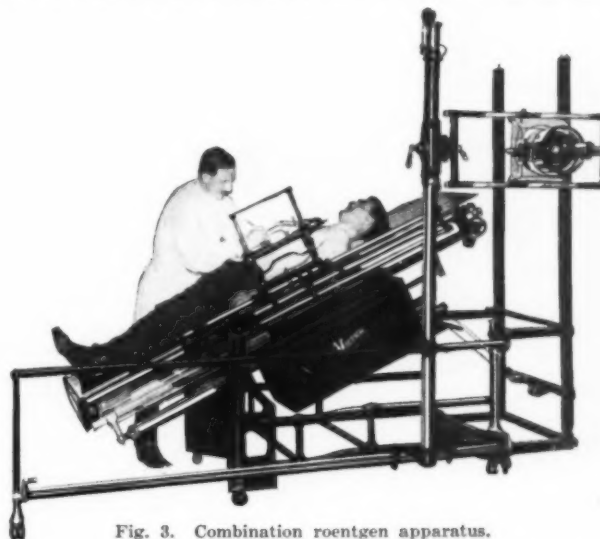


Fig. 3. Combination roentgen apparatus.

radiographic table, a vertical roentgenoscope, and a horizontal roentgenoscope, and in many instances apparatus for orthodiagraphy. The combination Roentgen apparatus (Fig. 3) is designed for all of the aforementioned functions, namely, radiography (ordinary and stereoscopic), fluoroscopy, orthodiagraphy, in horizontal, vertical, and angular positions. In spite of this unusually wide range of service, this apparatus takes up no more room than an



Fig. 4. Victor M. I. P. interrupterless x-ray transformer.

ordinary radiostereoscopic table. Any type of x-ray tube (gas, hydrogen or Coolidge) may be used with this apparatus, the tube connections being universal.

Since it is necessary for the larger hospitals to have in almost daily instance facilities for doing x-ray work at the bedside, the advent of the Victor M. I. P. interruptless x-ray transformer (Fig. 4) was welcomed into many institutions. It is of the semiportable type, being built in three sections, and is assembled for operation without any screws or other fastenings. When assembled it occupies a floor space less than 2 feet square. In spite of its small size it has sufficient capacity for all bone radiography, practically complete fluoroscopic service, and x-ray therapy.

The "American" interruptless transformer machine (Fig. 5) is of compact design, and, while originally placed on the market as a dental transformer, is particularly well adapted where average work is required. The machine has capacity sufficient for sending about 100 milli-



Fig. 5. "American" interruptless transformer machine.

amperes of current through a tube having a back-up of 4 inches.

The Meyer transformer is one which is well-known for its compactness in design and efficiency in delivering a satisfactory amount of current.

The McIntosh interruptless transformer is of a type which does away entirely with the motor and rectifying switch. This firm has recently placed a transformer on the market which is especially designed for small hospitals. At one end of the cabinet all controlling is done and at the other the tube stand is permanently attached.

The Wappler transformer is built in several types, so as to meet the demand of the individual hospital where the apparatus is to be installed. Principal among the important points of construction is the excellent grade of insulation used on all Wappler transformers. The claim is made and borne out by actual test that there can be no leakage of current from a Wappler machine. The entire front of the cabinet is made of thick black glass, which is, of course, one of the best insulators. This firm also makes an excellent automatic timing device, which, when used on the alternating current, will accurately measure the time of exposure as short as 1/120 part of a second.

The Kelley-Koett transformer is well known to many of our readers. During the past year several minor changes applying to points of convenience have been made, and this firm's line of accessories, such as tube stands, roentgenoscopes and other equipment has always shown their close understanding of the requirements of the x-ray operator.

The well-known and popular Snook model x-ray transformer has recently been equipped with a new device for measuring the penetration of the x-ray tube. This instrument is called the spark meter. It consists of a volt meter, which is tapped into the primary alternating current circuit of the machine and calibrated to read the resistance of the x-ray tube in inches of spark.

It is an electrical fact that the secondary voltage given off by the high-tension transformer is never greater than may be necessary to overcome a given resistance, such as might be offered by an x-ray tube. Should the resistance change, the voltage changes and the effect in the secondary voltage is felt in the primary. Therefore any meter which is tapped into the primary will register the resistance of the x-ray tube if properly calibrated.

The engineering department of the Victor Electric Corporation advises that these instruments are calibrated for each transformer and can, therefore, be guaranteed to be absolutely accurate. During the time that the instrument has been in use, it has received nothing but the highest praise from roentgenologists.

The importance of the proper localization of foreign bodies in the orbit of the eye has always been appreciated by eye surgeons, particularly since the various workmen's compensation acts have gone into effect in several states. Accurate localization of a bit of steel may mean the saving of a workman's eye, and no procedure should be too much trouble or too expensive to gain this result. The method in most general use for several years has been the one devised by Dr. William Sweet, of the Wills Eye Hospital of Philadelphia. Dr. Sweet is recognized as one of the greatest authorities on this subject. Some time ago Dr. Sweet, collaborating with Mr. H. Clyde Snook, devised the first practical instrument for localizing foreign bodies in the eye by mechanical means entirely. His earlier method was so complicated and so dependent upon the

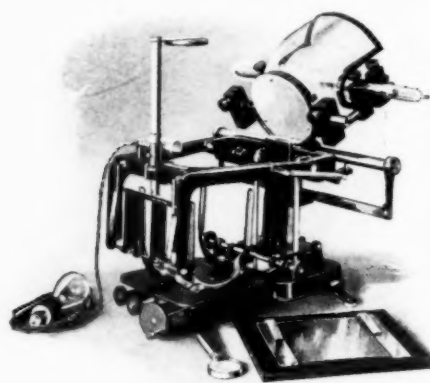


Fig. 6. Sweet eye localizer.

accuracy of the person doing the work that very few roentgenologists attempted to use it. With the improved Sweet eye localizer (Fig. 6) the personal element is entirely removed and the localization is made accurate within one-tenth of a millimeter without the means of cross threads or loose parts of any kind. The device is especially recommended for hospitals in industrial plants and in the large cities where work of this nature occurs.